

ADOLESCENTS' SOURCES OF HEALTH INFORMATION AND
SIBLING COMMUNICATION IN GHANA:
A MIXED METHODS ANALYSIS

A Dissertation

Presented to the Faculty of the Graduate School
of Cornell University

In Partial Fulfillment of the Requirements for the Degree of
Doctor of Philosophy

by

Deladem N. Kusi-Appouh

August 2012

© 2012 Deladem N. Kusi-Appouh

ADOLESCENTS' SOURCES OF HEALTH INFORMATION AND
SIBLING COMMUNICATION IN GHANA:
A MIXED METHODS ANALYSIS

Deladem N. Kusi-Appouh, Ph. D.

Cornell University 2012

Adolescence is an important developmental stage usually characterized by physical changes, psychosocial changes, and a tendency towards new experiences, such as sexual activity. It is generally understood that adolescents learn about sexual and reproductive health from multiple sources, including parents, friends, and the media. Less studied – particularly in non-Western and/or African contexts – is the role of siblings in shaping adolescents' knowledge, attitudes, and behaviors.

This study is a secondary analysis of data collected from focus group discussions (FGDs), in-depth interviews (IDIs), and a nationally representative survey among 12-19 year-olds in Ghana as part of a four-country project assessing the sexual and reproductive health of adolescents in sub-Saharan Africa. Through a mixed methods approach, the present study examines similarities and differences in the health information that adolescents receive from various sources. Using social learning theory and differentiation theory as frameworks, the study hones in on the contributions of siblings. Analyses of all three data sources produce complementary results. FGDs and IDIs show clear similarities in the timing and nature of sexual and reproductive health information that adolescents receive from other sources and from siblings, especially regarding sexual abstinence and preventing early pregnancy. The

FGDs and IDIs also provide evidence of social and observational learning, showing that siblings serve as agents of socialization, advisors, confidants, and role models. Findings from the survey and IDIs highlight the preponderance of communication and interactions between same-gender sibling dyads. Additionally, multivariate analyses show that older adolescents (15-19 years) are twice as likely to communicate with a sibling about sex-related matters as younger ones and that the likelihood is even higher among male adolescents who have at least one older sibling. Adolescents from rural areas, however, were significantly less likely to communicate with a sibling.

Besides establishing the need to consider siblings as an important target group in adolescent and family-centered policy and programmatic interventions in Ghana, results from this study emphasize the duality of adolescents as siblings who exchange sexual and reproductive health information and who can potentially impact the transition to adulthood.

BIOGRAPHICAL SKETCH

Deladem Kusi-Appouh received her undergraduate degree in Sociology and Anthropology from Agnes Scott College in 2001. Soon after, she went on to work with John Snow, Inc. in their Denver office as a Project Associate on the Infertility Prevention Project. Deladem earned her Master's in Development Sociology from Cornell University in 2007, with a concentration in Population and Development. She was selected as a Fred. H. Bixby Fellow at the Population Council and will start a 2-year fellowship working out of the Lusaka, Zambia office, starting in August 2012. She looks forward to a successful career as a social demographer and to producing research that will make an impact on population issues, particularly those pertaining to adolescents and the African region.

This dissertation is dedicated to:

Nancy J. Hafkin, Ph.D.

Catherine Gabianu

Mike Kosi

George Ansah, Ph.D.

... and to overcoming adversity.

ACKNOWLEDGMENTS

The significance of my name Deladem – which translates into ‘*The Lord has delivered me*’ in the Ewe language spoken in Ghana and Togo – never became more apparent as it did during this dissertation journey. Starting with a broken ankle after slipping on ice on February 14, 2008 requiring two surgeries and the insertion of seven screws to being diagnosed with cerebral sinus venous thrombosis on October 18, 2011, this journey has been bumpy to say the least. But the Almighty God *did* deliver me from all these obstacles and I give Him all the praise. Throughout this journey of pain and discovery, I have been motivated by Ecclesiastes 9:11 which reads “I have seen something else under the sun: The race is not to the swift or the battle to the strong, nor does food come to the wise or wealth to the brilliant or favor to the learned; but time and chance happen to them all (NIV, 1984). May my completing this dissertation be a testimony to others who are in still in the race.

This dissertation could not have been completed without the help of my professors, family, and friends, all of whom I would like mention here as a small gesture to show my sincere appreciation. Lindy Williams, my dissertation advisor whose reserves of patience I may have abused. Thank you for your intellectual and personal guidance in producing a body of work that I can be proud of. Alaka Basu and Josephine Allen – both dissertation committee members – for your support and guidance that went above and beyond the halls of Uris, Warren, and Martha Van Rensselaer. Parfait Eloundou-Enyegue, my fourth committee member, for your guidance and for imparting knowledge even in the most casual of circumstances (e.g. while practicing your golf swing!). Sharon Sassler, for taking me under your wing and for your honesty in how to achieve academic productivity and balance family life (advice you cannot find in books!). Jennifer Tiffany, for your support, guidance, and

mentoring since our first encounter in 2004. Thank you for believing in me and cheering me *all* along the way. Sena Gabianu, my mother, whose love and support became overwhelming at times, but helped me to stay on track. Nancy Hafkin, for enduring the day-to-day rollercoaster of this journey, for an outpouring of love even when I didn't know I needed it, and for giving me strength to keep pushing when I had none left in my body. These past two years have been so meaningful and rewarding. A very special thank you also goes to Charles Wolfson for your support throughout and to George Ansah for accepting the responsibility of being my guardian angel.

I would also like to thank the following sets of persons: (A) Nana Mockoah Ackatia-Armah, Pearl Kyei, Bubu Banini, Satvika Chalasani, Nana Ama Adom-Boakye, Mercy Lung'aho, and Sade Owolabi, who were a hybrid between dissertation coaches and cheerleaders. Thank you for allowing me to infiltrate your private time with incessant questions, requests, and demands. You made me believe in myself and the merits of my dissertation topic and I am truly grateful for that. Also, special thanks to Anita Chikkatur for inviting me to spend the coldest days in Carelton, Minnesota, which gave me the peace to focus on my data analysis; (B) my #1 cheerleaders' squad: Ama Fordjour, Naa Oyoo Quartey, Kelly Limes-Taylor, Mekedes Demissew, Ribka Berhanu, Buddy Buruku, Astro E. Darkoh, Stephen Abebreseh, Nana Ama Asare, Jumoke Warritay, Kwesi 'Kraazy' Ansah, and Diana Hernandez. I could not have made it without your constant support and faith. You saw the end before I ever did; (C) my dissertation buddies: Inku Subedi, Naoko Mizuno, Hyunok Lee, Florio Arguillas (thank you for saving me from near disasters with CISER!), and Fenaba Addo. Thank you for keeping me sane throughout the process. And to Lydiah Gatere: what can I say? Our unapologetic takeover of libraries and perseverance paid off and can now have our weekends to ourselves (I think?); (D) my immediate and extended family: Catherine Gabianu, Nnena Sharp, Maja Kabasa, Edem Kabasa, Suzie Gabianu,

Kosi Kpotivi, Mercy Kpotivi, Anita Opoku, Diana Opoku, Patrick Amoaku, Ohemaa Nyanin, Marilyn Aniwa, Cleopatra Warritay, Illeme Amegatcher, Theophilus Amegatcher, Nirina Diop, Debbie Terkper, Seth Terpker, Sika Tettey, Kwame Boadi, Yaa Felicia Boadi, Yaw Amoah, Ben Gyepi-Garbrah, Erwin Kwawu, Kofi Afful, Fauziah Ibrahim, Joseph, Elizabeth, and Dan Pleck, and the Kosi Family; (E) my undergraduate professors who planted the seed of intellectual pursuit in me: Yvonne Newsome, Brenda Hoke, and Isa Williams; (F) those whose actions have blessed me and for whose friendship I am eternally grateful: Hilda Mensah-Adibuer, Ehui Adovor, Amanda Flaim, Daniel Alhquist, Sara Keene, Ian Bailey, Elizabeth A. Yankah, Joanne Awuor Oport, Mawuli Leketey, Wisdom Akpalu, Edem Kumaga, Rahel Merissa, Kenny Ajayi, Taiwo Ajayi, Kari Midthun, Delali Ankamah, Steve Welch, Devparna Roy, Jennifer Cowan, Bibigi Haile, Kweku Ainuson, Fatou Jah, Vongai M. Kandiwa, Yared Haile, Christian Lentz (for wisdom about approaching the dissertation as discrete tasks), Gayatri Menon (for wisdom about the last three weeks of the dissertation being when it finally clicks), John S. Manyo-Plange, Rachel Reichenbach, Sandra Mulumba-Sala, Dovelie Sala-Diakanda, Louis Serge Akadia, Adwoa Agyeman, Abena Agyeman, Oumou Bengeloune, Rakibou Ouro-Djobo, Nana-Ama Kyerematen, Ola Alade, Sylvie Babadjide, Michelle Patrick Hall, Aimee Ahmed, and other members of the Sungoddess Sisterhood, Nansata Yakubu, Welela Haileselassie, Befekadu Ayenew, Regis Zoula, Dolapo Enahoro, Niilante Amissah, Edward Abrokwah, Naalamle Amissah, Kunbi Adeyemo, Alberta Tete-Lartey, and Nalini Rao; (G) members of Cornell University's community who helped me survive my graduate years: Tracy Aagaard, Laurie Johnson, Terri Denman, Tom Hirschl, Brenda Wickes, Brendan O'Brien, professors and graduate students of the Department of Development Sociology, Professor Muna Ndulo and Jackie Sayegh of the Institute for African Development; (H) doctors, nurses, and nurses' aides at the Framingham

Metro West emergency room as well as the UMass Medical Center Neurology Unit and Anti-Coagulation clinic in Worcester, MA, who helped me successfully recover from my terrifying diagnosis; (I) Jill Keesbury, Paul Hewett, Saumya Ramarao, Hannah Taboada, and Karen Austrian for the opportunity to be a Fred H. Bixby Fellow at the Population Council and showing compassion during the unforeseen circumstances; (J) the students, staff, and libraries at Carleton College, Wellesley College, Framingham State University, and Bentley University for providing access to its amenities; (K) music of gospel artists like Darwin Hobbs, Donald Lawrence, Micah Stampley, Yolanda Adams, Maurette Brown-Clark, Marvin Sapp, Whitney Houston, Chris Fleischer, and Juanita Bynum for enabling me to praise my way out of pain, depression, and anxiety into joy, strength, and perseverance; (L) Cornell University's Population and Development Program for funding significant portions of my doctoral studies, the Polson Institute for funding portions of my fieldwork, and the Cornell Institute for Social and Economic Research (CISER) for state-of-the-art data management services and software; and finally (M) the Guttmacher Institute and the PNG research teams for collecting high quality data and for providing full access to secondary researchers as well as the opportunity to create new knowledge.

TABLE OF CONTENTS

CHAPTER 1	1
INTRODUCTION	1
1.1 – Motivation of study	2
1.2 – Research problem statement	3
1.3 – Research objectives.....	5
1.4 – Organization of dissertation.....	6
CHAPTER 2	8
LITERATURE REVIEW	8
2.1. – Adolescence	9
2.2. – Adolescent development: why focus on siblings?	12
2.3. – Research on siblings and sibling relationships: progress in the field	15
2.3.a. Social learning theory	16
2.3.b. Differentiation theory	18
2.3.c. Two sides of the same coin?.....	20
2.3.d. Developmental stages.....	22
2.3.e. Populations and Samples	23
2.3.f. Methodological and theoretical advancement	25
2.3.g. Inquiry	25
2.3.h. Sibling relationships.....	26
2.3.i. The quality of relationships.....	28
2.4. – Affective dimensions of sibling relationships	29
2.4.a. Warmth, nurturance, and closeness	29
2.4.b. Conflict and rivalry	32
2.5. – Structural dimensions of sibling relationships.....	33
2.5.a. Birth order	34
2.5.b. Age spacing	37

2.5.c. Age	38
2.5.d. Gender	41
2.5.e. Moderate to weak effects.....	45
2.6. – Individual factors affecting sibling relationships.....	45
2.7. – Family and parental factors affecting sibling relationships	46
2.8. – Peer relationships and sibling relationships.....	49
2.9. – Linking adolescent sexual and reproductive health and sibling relationships in Africa	50
2.10. – Ghana: public and adolescent health profile.....	53
2.10.a. Youth and adolescents	54
2.10.b. Policy environment	55
2.10.c. Adolescent sexual and reproductive health – research and studies	57
2.11. – Conceptual Framework.....	65
2.12. – Chapter summary	66
2.13. – Research questions and hypotheses	69
CHAPTER 3.....	73
METHODS AND DATA	73
3.1. – Quantitative and qualitative research: two parts of a whole?	74
3.2. – Focus group discussions (FGDs)	77
3.3. – In-depth interviews (IDIs)	81
3.4. – Surveys.....	83
3.5. – Data collection & methods	84
3.5. a. PNG focus group discussions.....	84
3.5.b. PNG in-depth interviews.....	88
3.5.c. PNG surveys.....	93
3.6. – Analyzing qualitative data	96
3.7. – Secondary data analysis	99
3.7.a. Advantages of secondary (qualitative) data analysis	103
3.7.b. Disadvantages and concerns of secondary (qualitative) data analysis	103
3.7.c. Studies using secondary qualitative analysis.....	106

3.8. – Accessing data sources	108
3.9. – Secondary analysis of FGDs, IDIs, and survey	109
3.9.a. Data management and analytical strategy	110
3.9. b. Measures	115
3.10. – Similarities and differences in PNG data analysis.....	117
3.11. – Socio-demographic characteristics of adolescent samples	118
 CHAPTER 4.....	 123
MULTIPLE SOURCES, YET SIMILAR MESSAGES	123
4.1. – Sex-related matters	124
4.1.a. Puberty.....	130
4.1.b. Awareness of romantic and/or sexual relationships.....	135
4.1.c. Siblings: puberty information and awareness of relationships.....	137
4.2. – Pregnancy and HIV/AIDS information	139
4.2.a. Contraceptives and pregnancy prevention	139
4.2.b. STIs, HIV, AIDS and prevention	145
4.2.c. Siblings: contraceptives, pregnancy, STI, and HIV/AIDS information....	153
4.3. – Preferred and trusted sources: pregnancy and STI/HIV/AIDS prevention	155
4.3.a. Preferred sources of information.....	155
4.3.b. Trusted sources of information	155
4.3.c. Siblings: preferred and trusted sources	157
4.4. – Encouragement to abstain from sex.....	159
4.4. a. Internalizing the message of sexual abstinence.....	161
4.4. b. Siblings: encouraging sexual abstinence.....	162
4.5. – Healthcare-seeking behavior.....	166
4.5. a. Reproductive health problems.....	167
4.5.b. Intended healthcare-seeking behaviors	170
4.6. – Admiration and aspiration	173
4.6. a. Reasons for aspiration and admiration	174
4.6. b. Siblings: admiration and aspiration.....	176

4.7. – Chapter summary	178
CHAPTER 5	181
SIBLING COMMUNICATION AND INTERACTION	181
5.1. – Number of siblings.....	182
5.2. – Sibling dyad composition: the significance of birth order and gender	182
5.2.a. Birth order	182
5.2.b. Gender	183
5.3. – Communicating with siblings	188
5.3.a. Sex-related matters	189
5.3.b. Puberty as a sex-related matter	195
5.3.c. Intimate relationships as a sex-related matter	198
5.3.d. Pregnancy and contraceptives information: siblings as sources of information	200
5.3.e. STIs/HIV/AIDS information: siblings as sources of information.....	202
5.3.f. Pregnancy, contraceptives, and STIs and/or HIV/AIDS information: siblings as preferred sources of information.....	202
5.3.g. Siblings as trusted sources of information	203
5.3.h. Utility of information	205
5.4. – Siblings as proponents of sexual abstinence.....	209
5.5. – Help with health problems	214
5.6. – Social learning and differentiation.....	215
5.6.a. Social learning from opportunity and exposure	215
5.6.b. Social learning by differentiation.....	218
5.6.c. Social learning by modeling.....	219
5.7. – Roles and expectations of siblings in the family and its functioning	222
5.8. – Chapter summary	225
CHAPTER 6.....	229
DISCUSSION AND CONCLUSIONS	229
6.1. – Most frequently cited sources of information.....	230

6.2. – Nature and timing of information	231
6.3. – Socio-demographic variation	234
6.4. – Social and observational learning	238
6.5. – Family functioning.....	240
6.6. – Contributions of the present study	241
6.7. – Policy implications	243
6.8. – Program recommendations	245
6.9. – Study Limitations.....	246
6.10. – Future directions	249
6.11. – Conclusions.....	257
REFERENCES	286

LIST OF FIGURES

Figure 2.1 – Conceptual Framework of Links between Adolescent Health-Related Knowledge, Attitudes, Behaviors and Sibling Communication.....	72
Figure 4.1 – Sub-themes regarding puberty & body changes information	134
Figure 4.2 – Sub-themes regarding reactions to intimate relationships	138
Figure 4.3 – Sub-themes regarding pregnancy & HIV/AIDS prevention information	154
Figure 4.4 – Sub-themes regarding reasons for trusting pregnancy & HIV/AIDS prevention information	158
Figure 4.5 – Sub-themes regarding reasons given to abstain from sex	165
Figure 4.6 – Sub-themes regarding actions taken when adolescents experienced a (reproductive) health problem	169
Figure 4.7 – Sub-themes regarded adolescents’ intended actions given a hypothetical reproductive health problem.....	172
Figure 4.8 – Sub-themes regarding reasons for admiration or role modeling	177

LIST OF TABLES

Table 3.1 – Demographic characteristics of focus groups	120
Table 3.2 – Frequencies and percentages of adolescents’ socio-demographic and behavioral characteristics, 2004 <i>In-depth interviews</i> (Ghana)	121
Table 3.3 – Percentage distribution of adolescents, by socio-demographic characteristics, according to sex and age, 2004 <i>National Survey of Adolescents</i> (Ghana)	122
Table 4.1 – Ranking by percentage of adolescents who reported communication with five selected sources of information, by topics of interest and gender, 2004 <i>National Survey of Adolescents</i> (Ghana)	126
Table 4.2 – Percentage of adolescents, by persons who talked about sex-related matters with adolescents, according to gender and age group, 2004 <i>National Survey of Adolescents</i> (Ghana)	127
Table 4.3 – Percentage of adolescents, by persons who talked about sex-related matters with adolescents, according to gender and residential location, 2004 <i>National Survey of Adolescents</i> (Ghana)	128
Table 4.4 – Percentage of adolescents, by persons who talked about sex-related matters with adolescents, according to gender and schooling status, 2004 <i>National Survey of Adolescents</i> (Ghana)	129
Table 4.5 – Percentage distribution of adolescents who experienced menstruation/puberty, according to gender and age group, 2004 <i>National Survey of Adolescents</i> (Ghana)	130
Table 4.6 – Adolescents who know of at least one contraceptive method, by <i>used</i> sources of information for methods, according to gender and age group, 2004 <i>National Survey of Adolescents</i> (Ghana)	142
Table 4.7 – Adolescents who know of at least one contraceptive method, by <i>used</i> sources of information for methods, according to gender and residential location, 2004 <i>National Survey of Adolescents</i> (Ghana)	143
Table 4.8 – Adolescents who know of at least one contraceptive method, by <i>used</i> sources of information for methods, according to gender and schooling status, 2004 <i>National Survey of Adolescents</i> (Ghana)	144

Table 4.9 – Percentage of adolescents who know of any STIs or HIV/AIDS by <i>used</i> sources of information on STIs/HIV/AIDS, according to gender and age group, 2004 <i>National Survey of Adolescents</i> (Ghana)	148
Table 4.10 – Percentage of adolescents who know of any STIs or HIV/AIDS by <i>used</i> sources of information on STIs/HIV/AIDS, according to gender and residential location, 2004 <i>National Survey of Adolescents</i> (Ghana)	149
Table 4.11– Percentage of adolescents who know of any STIs or HIV/AIDS by <i>used</i> sources of information on STIs/HIV/AIDS, according to gender and schooling status, 2004 <i>National Survey of Adolescents</i> (Ghana)	150
Table 4.12 – Percentage distribution of adolescents who never had sexual intercourse by encouragement received, according to gender and age group, 2004 <i>National Survey of Adolescents</i> (Ghana)	163
Table 4.13 – Percentage distribution of adolescents who never had sexual intercourse by encouragement received, according to gender and residential location, 2004 <i>National Survey of Adolescents</i> (Ghana)	163
Table 4.14 – Percentage distribution of adolescents who never had sexual intercourse by encouragement received, according to gender and schooling status, 2004 <i>National Survey of Adolescents</i> (Ghana)	164
Table 5.1 – Frequency and percentage distribution of adolescents, by characteristics of siblings, 2004 <i>National Survey of Adolescents</i> (Ghana)	186
Table 5.2 – Frequency and percentage distribution of adolescents who communicated with a sibling, by older siblings’ status and adolescents’ socio-demographic characteristics, 2004 <i>National Survey of Adolescents</i> (Ghana)	187
Table 5.3 – Likelihood of communicating with a sibling about sex-related matters, by socio-demographic characteristics, all adolescents, 2004 <i>National Survey of Adolescents</i> (Ghana)	192
Table 5.4 – Likelihood of communicating with a sibling about sex-related matters, by socio-demographic characteristics, males, 2004 <i>National Survey of Adolescents</i> (Ghana)	193
Table 5.5 – Likelihood of communicating with a sibling about sex-related matters, by socio-demographic characteristics, females, 2004 <i>National Survey of Adolescents</i> (Ghana)	193
Table 5.6 – Likelihood of communicating with a sibling about sex-related matters, by socio-demographic characteristics, all adolescents with at least one older sibling, 2004 <i>National Survey of Adolescents</i> (Ghana)	194

Table 5.7 – Likelihood of communicating with a sibling about sex-related matters, by socio-demographic characteristics, males with at least one older sibling, 2004 <i>National Survey of Adolescents</i> (Ghana).....	194
Table 5.8 – Likelihood of communicating with a sibling about sex-related matters, by socio-demographic characteristics, females with at least one older sibling, 2004 <i>National Survey of Adolescents</i> (Ghana).....	195
Table 5.9 – Percentage of male adolescents reporting at least one sibling as a used and preferred source of sexual and reproductive health information, by current schooling status, age group, and residence, 2004 <i>National Survey of Adolescents</i>	207
Table 5.10 – Percentage of female adolescents reporting at least one sibling as a used and preferred source of sexual and reproductive health information, by current schooling status, age group, and residence, 2004 <i>National Survey of Adolescents</i>	212

LIST OF APPENDICES

Appendix A – In-depth interview dissertation study code manual	259
Appendix B – List of sources of information discussed by adolescents, 2004 <i>In-depth interviews</i> (Ghana).....	264
Appendix C – Category / Theme / Sub-theme by sibling dyad, sibling birth order, and adolescent’s socio-demographic characteristics, 2004 <i>In-depth interviews</i> (Ghana).	265
Appendix D – Context of adolescent’s communication/interaction with sibling, 2004 <i>In-depth interviews</i> (Ghana).....	273
Appendix E – Percentage of adolescents who reported at least one sibling as a used and/or preferred source of sexual and reproductive health information from 2004 <i>National Survey of Adolescents</i> (Burkina Faso, Ghana, Malawi, and Uganda)	285

CHAPTER 1

INTRODUCTION

During their transition to adulthood, the timing, nature, and sources of information available to adolescents dictate their preparedness to handle the developmental changes and potential challenges that characterize this stage. Of particular interest in this research is the sexual and reproductive health information that adolescents receive during this period.

Bronfenbrenner's (1989) ecological systems theory submits that adolescents are influenced by the relationships and interactions they have with their immediate surroundings known as the microsystem, which encompasses the family, peers, school, and neighborhood. According to Bronfenbrenner (1989), the relationships and interactions formed within the microsystem have a bi-directional impact – both away from and towards the adolescent – and become more complex as the adolescent grows and matures. The theory asserts that bi-directional influences in the microsystem are the strongest and have the greatest impact on adolescents when compared to the *exosystem*, which includes community, culture, and society.

A focus on the family in which adolescents grow up is warranted especially because the family is a complex and interdependent system, as posited by Bowen (1978)'s family system theory. Bowen (1978) views the family as being composed of three sub-systems – spousal, parent-child, and child-child – whose interactions affect its members' attitudes and behaviors.

Ensuring that adolescents receive accurate information about sex and their sexuality from these various stakeholders is critical since adolescents who engage in unprotected sex are at a higher risk of unintended pregnancy and contracting sexually transmitted infections, both of which can have severe consequences. These consequences are usually more pronounced for females if they experience unsafe abortions, early motherhood, financial instability, social stigma, and a discontinuation of their education. Thus, the timing, nature, and sources of reproductive health information can make a difference in whether adolescents adopt protective sexual and reproductive behaviors or engage in risky ones.

1.1 – *Motivation of study*

Youth-centered policy and programs often emphasize the need to equip adolescents with adequate information about their sexual and reproductive health, but do not exhaust adolescents' sources of information, interaction, and influence. Family and friends are generally cited as proximal sources for adolescents' sexual and reproductive health and decision-making. However, 'family' here often insinuates the relationship between adolescents and their parents and/or between spouses. Less emphasized is the role of siblings in shaping adolescents' sexual and reproductive health knowledge, attitudes, and behaviors even though the theory of social learning suggests that siblings can play a significant role in the lives of adolescents by serving as socializing agents and comparative references (Bandura 1969, 1977). Through sibling communication and interaction, adolescents can learn social norms and

develop risk cognitions (East 1996; East and Jacobson 2000; East and Khoo 2005; McHale, Kim, and Whiteman 2006; McHale, Updegraff, Shanahan et al. 2005; Pomery, Gibbons, and Gerrard et al. 2005; Widmer and Weiss 2000). Existing research also indicates that adolescents may model behaviors similar to those of their sibling(s) in several domains, including gender and sexual socialization (e.g. Kornreich, Hearn, Rodriguez et al. 2003); timing of sexual initiation (e.g. Widmer 1997); risky or sexual behaviors (e.g. Rodgers and Rowe 1988); substance use (e.g. Pomery et al. 2005; Slomkowski, Rende, Novak et al. 2005; Trim, Leuthe and Chassin 2006); but also adopting safe sex practices (Kowal and Kramer 1997).

1.2 – Research problem statement

Despite relatively large family sizes in the region, research on sibling relationships and influence among Africans is not common. Rather, sibling research in African contexts has centered on rivalry, resource allocation, and quantity-quality tradeoffs. Furthermore, only a handful of studies concerning adolescent sexual and reproductive health have inquired about siblings and even fewer have focused entirely on siblings. The exception include a study in Kenya which found that adolescents felt most comfortable discussing sexual matters with their siblings (Kiragu, Obwaka, Odallo et al. 1996). Another study in Bamenda, Cameroon revealed that adolescents preferred talking with friends and older siblings about their first sexual experience (Rwenge 2000). Studies from Ghana (Karim, Magnani, Morgan et al. 2003), Cote d'Ivoire (Diop-Sidibe 2005), and South Africa (Munthree 2009) all concluded that

adolescent girls were at an increased risk of having a premarital birth if their older sister had experienced one. Ele and Ibeh (2001) also found that more than a third of Nigerian female secondary school students whose sisters smoked were smokers themselves.

Although the aforementioned studies were conducted using representative samples of adolescents, they did not capture the ways in which adolescents can learn from their siblings, including observation and role modeling. Moreover, these studies did not address the timing and nature of information that adolescents received from their siblings. If siblings can serve as agents of socialization and be important sources of influence, it is vital to understand how siblings fit into the larger sphere of adolescents' transition to adulthood. Additionally, because siblings commonly occupy a unique niche in society (simultaneously as family members and peers), understanding the kind of health information that flows between adolescents and their siblings is important. For instance, do siblings provide accurate sexual and reproductive health information? How is the content of the information shared by siblings similar to or different from that of other sources? Do adolescents regard their siblings as credible sources of information? To what extent do adolescents observe and/or emulate their siblings' behaviors? Evidently, such questions can be reduced to quantifiable measures, but they would likely be devoid of a nuanced understanding of adolescents' learning mechanisms and communication with their siblings. Complementing representative quantitative data with qualitative data can provide a rich appreciation of how adolescents navigate their sexual and reproductive health decision-making and the contributions of siblings in this process.

1.3 – Research objectives

The majority of adolescents receive sexual and reproductive health information from multiple sources. Using a mixed-methods approach, this dissertation examines the timing, nature, and sources of sexual and reproductive health information that adolescents receive. It also explores any evidence of sibling communication and interaction within the context of sexual and reproductive health information and the transition to adulthood. I conduct secondary analysis of a nationally representative survey with 4430 respondents, 100 in-depth interviews, and 16 focus groups discussions conducted among 12-19 year-old males and females in Ghana. These data were collected in 2004 as part of a larger study known as the *Protect the Next Generation* (PNG) project, carried out by the Guttmacher Institute and its partners in Burkina Faso, Ghana, Malawi, and Uganda. The combination of data generated from three different methodologies provides fertile ground to explore my research questions. I focus on relevant data pertaining to my home country of Ghana, a context with which I am familiar. Ghana was an early adopter of the 1994 International Conference on Population and Development (ICPD)'s Programme of Action in Cairo and prioritized sexual and reproductive health in policy and programs soon after that. Even with these remarkable steps, Ghana remains conservative enough such that communication with youth – particularly unmarried youth – about sexuality, abortion, and contraceptive use is still considered generally inappropriate. While the role of the family in shaping adolescents' sexual and reproductive health attitudes and behaviors

in existing policies and programs is recognized, adolescent socialization and the transmission of norms is mainly defined as the task of adults in society.

1.4 – Organization of dissertation

The dissertation is organized into six chapters. **Chapter 2** explores literature pertaining to adolescent sexual and reproductive health and describes the theoretical framework within which sibling communication and interaction can be understood. It also includes the conceptual framework, research questions, and hypotheses that guide this dissertation study. **Chapter 3** details the primary data sources, secondary methods of analysis as well as socio-demographic characteristics of the adolescent samples. **Chapter 4** presents findings that highlight adolescents' multiple sources of information and communication as well as the timing and nature of this information. In conjunction with relevant survey data, the chapter is arranged by themes and subthemes that emerged from the in-depth interviews. **Chapter 5** focuses on adolescents' communication and interactions with siblings as revealed at the national level as well as in their dialogue from the focus group discussions and narratives from their in-depth interviews. Themes and subthemes pertaining to siblings are laid out in this chapter. The chapter also includes bivariate and multivariate analyses examining the relationship between adolescents' socio-demographic characteristics and communication with siblings about sex-related matters. **Chapter 6** provides a discussion of the findings, strengths, and limitations of this dissertation study. The chapter also considers the implications of the findings and offers concluding thoughts

and directions for future research concerning on the role of siblings in the lives of Ghanaian adolescents as well as in their sexual and reproductive health decision-making.

CHAPTER 2

LITERATURE REVIEW

This dissertation study seeks to explore the contributions of siblings in adolescent development as well as sexual and reproductive health in Ghana. In this chapter, I discuss the period of adolescence and the merits of focusing on this developmental stage and the linkages between adolescence and the role of siblings during this period. Next, I present an overview of the field of sibling research and two guiding theories – social learning and differentiation – in the study of siblings. I then provide an outline of the affective (warmth, nurturance, closeness, conflict, or rivalry) and structural (birth order, age, age spacing, gender) dimensions of sibling relationships that are likely to affect similarity and difference in siblings’ attitudes and behaviors. I also highlight the impact of family relationships, peer relationships, and parental background characteristics on adolescents’ attitudes and behaviors. Furthermore, I present findings from research conducted among African adolescents that link sibling characteristics to adolescent sexual and reproductive health, while emphasizing an overall shortage of such studies. Lastly, I provide an overview of Ghana’s demographic and policy trends that place the sexual and reproductive health of Ghanaian youth in context.

2.1. – Adolescence

The period of adolescence usually represents a time of significant physical, psychosocial, and behavioral changes. It is also a time commonly associated with new experiences, including the initiation of sexual activity. While sexual activity is not in itself negative, the consequences of unprotected sexual intercourse are generally harmful and have been well documented. By having unprotected sexual intercourse, adolescents engage in risky behaviors that put them at a higher risk of contracting sexually transmitted infections (STIs), including HIV (Miller and Heaton 1991; Wilkinson and Rutherford 2001). Attributed to biological differences, the risk of contracting an STI is even higher among females and is inversely related to their age (Anderson 1989; Wilkinson and Rutherford 2001). Engaging in unprotected sex also increases the risk of unintended pregnancy (Bledsoe and Cohen 1993; Mahy and Gupta 2003; Miller and Heaton 1991; Zabin and Kiragu 1998). Again, young girls are more likely to experience the adverse effects of unintended pregnancy, including deleterious and potentially fatal pregnancy-related complications (Blum and Nelson-Mmari 2004; Singh 1998). The consequences of unintended pregnancy can also have serious social and cultural repercussions. For girls in particular, unintended pregnancy can lead to dropping out of school as well as a compromised earning potential, increased likelihood of living in poverty, and lowered social status (Ainsworth, Beegle and Nyamete 1996; Lloyd 2005; Singh 1998; Singh and Darroch 1999). Studies repeatedly confirm strong relationships between early sexual debut and several indicators. For instance, low socio-economic status (Bumpass and McLanahan 1988;

Hogan and Kitagawa 1985; Rani and Lule 2004), living in single-parent headed household (Brewster 1994; East 1996; East 1999; East and Khoo 2005; Gupta and Costa 1993; Hogan and Kitagawa 1985; Kirby 1999, 2001; Miller 2002), and not attending school/not being educated (Gupta and Costa 1993; Lloyd 2005) have been found to increase the likelihood of early sexual debut. Meanwhile, positive parent-child relationships (McNeely, Shew, Beuhring et al. 2002) and increased amount of time spent with parents (Averett, Argys, and Rees 2010; Donovan and Jessor 1985; Kumi-Kyereme et al. 2007b; Shilts 1991) have been found to delay sexual initiation. The aforesaid indicators are also associated with the likelihood of early and unintended pregnancy in the same directions.

The heightened vulnerability of young people to HIV and unintended pregnancy make them a key target group to educate and sensitize. The message of delaying sexual debut has been promoted to the general population through social marketing and health campaigns, although it has mainly been tailored to youth (Awusabo-Asare 1995). In the 1990s, health campaigns across Africa latched on to the ‘ABC’ slogan, which stands for “Abstain, Be Faithful, and Use a Condom.” Of the three, abstinence until marriage has received the most attention and is touted by religious and conservative groups as the most effective way to prevent HIV/AIDS and premarital pregnancy.

In sub-Saharan Africa, heterosexual transmission is the primary mode of spread of HIV (Anderson 1989; Poundstone, Strathdee, and Celentano 2004) and the behaviors of adolescents and young adults play a crucial role in the course of an HIV epidemic (Karim et al. 2003). In the absence of a cure for HIV or AIDS, it is even

more critical for individuals to adopt and maintain protective behaviors (Bankole, Ahmed, Neema et al. 2007).

It is widely understood that individuals' attitudes and behaviors are also affected by their interactions with persons closest to them. Young people's socialization as well as their sexual and reproductive attitudes and behaviors cannot be fully explained without an understanding of the family forces that shape them (Adomako-Ampofo 2001; Mead 1963; Stoll 1974). Family system theory submits that the family is a larger system comprised of interdependent subsystems: spousal, parent-child, and sibling (Bowen 1978). The attitudes and behaviors of members of these subsystems are affected by their interactions, which can affect the levels of harmony or conflict in family life (McHale and Crouter 1996; Trim et al. 2006). Cultural factors also shape individuals' values, attitudes, and behaviors as well as family processes and dynamics (Soli, McHale, and Feinberg 2009; Spencer 1995). However, youth-centered policies, HIV/AIDS and pregnancy prevention efforts as well as theoretical and empirical research examining influences on youth's attitudes and behaviors tend to characterize the nuclear family's relationships as those between children/adolescents and their parents, but neglect the relationships among children (Kaberege, Modeste, Montgomery et al. 2003; Karim et al. 2003; Longmore, Manning and Giordano 2001; McHale, Bissell, and Kim 2009; Miller, Norton, Curtis et al. 1997).

2.2. – Adolescent development: why focus on siblings?

Even though childhood and adolescence are significant developmental periods for the sibling relationship, the impact of siblings on inculcating norms and affecting adolescents' attitudes and behaviors has generally received less attention in academic research (Gaines, Rugg, Zemore et al. 1999; Haynie and McHugh 2003; Kowal and Blinn-Pike 2004; Lamb and Sutton-Smith 1982; Mauthner, Parry, and Backett-Milburn 1998; Rodgers, Rowe, and Harris 1992). An expanding body of research underlines the role of siblings throughout the life course as agents of socialization, facilitators, role models, sources of information and support, as well as companions (Ardelt and Day 2002; Benin and Johnson 1984; Duncan, Duncan, and Alpert 1998; Haynie and McHugh 2003; Kowal and Blinn-Pike 2004; Lamb and Sutton-Smith 1982; McHale, Kim, Whiteman 2006b; Meek 2008; Morrongiello and Bradley 1997; Olenick 1998; Rodgers and Rowe 1988; Rodgers et al. 1992; Slomkowski et al. 2005; Stevenson and Lee 2001; Van Der Vorst et al. 2007).

In making the argument for the need to focus on siblings and sibling relationships, it is necessary to define a sibling. A detailed classification system based on linguistics, region, and culture analyzed by (Murdock 1968) revealed that over 800 words capture the concept of siblings and siblinghood around the world. A review of the literature suggests that apart from studies interested in directly examining siblingship, the majority of family-related journal articles, books, and media employ the term 'sibling' without providing an operational definition.

The sibling. The definition of who is considered a sibling can vary by culture, society, or research-related measures, all adding to its complexity. Cross-cultural studies of sibling relations indicate that siblings are usually defined according to genealogical, biological, legal, behavioral, or affectional criteria (Cicirelli 1994, 1995; Nerlove and Romney 1967; Weisner 1989; Rabain-Jamin, Maynard, and Greenfield 2003). Whereas full siblings are connected to each other by two biological parents, half siblings are connected by one biological parent. Adoptive siblings or stepsiblings are connected legally through adoption or a parent's remarriage, respectively. Individuals who feel connected to one another based on behavior or affection are usually referred to as fictive siblings or 'siblings by choice' (Cicirelli 1994, 1995; Weisner 1989).

Definitions of siblings can also go beyond the criteria described above. In several indigenous cultures, the concept of family is based on different spiritual and philosophical beliefs such that a brother or sister is not always related by biology, but also by clan or skin (Dunn 2002). In Kenya's Giriama culture, for instance, siblings include children of the same tribe or village who are in the same age group (Wenger 1989). Also in Kenya, Abaluyia culture understands siblings to include fostered children living in the same household (Weisner 1989). Regardless of blood affiliation, children in such cultures are considered true siblings because they are expected to express particular behaviors and feelings and to fulfill expectations (Cicirelli 1994; Marshall 1983; Weisner 1989). A larger sibling subsystem may offer greater support structures for the elderly as well as for members of the sibling group itself (Cicirelli 1994). According to Radcliffe-Brown (1924), the concept of siblingship is

theoretically viable based on the structural nature of the sibling group and because their relations are fundamental to the family. (Cicirelli 1994) explains that the extent to which siblings are defined by these criteria and given privileges in a family network depends on the family and its functioning. (Niehaus 1994) also argues that equating the household with the nuclear family neglects the wider relations, such as those between siblings.

In the present study, I consider siblings to be those whom adolescents in the focus group discussions and in-depth interviews described as their brother, sister, or sibling. I make the assumption that these adolescents were referring to their biological, adopted, step and fostered siblings. With regard to the survey, siblings are defined as all those whom the head of the household designates as their son, daughter as well as their adopted, step, and fostered child.

With the exception of countries that have stringent fertility-related policies, the greater majority of individuals grow up with siblings (Hernandez 1997; Meek 2008). Siblings generally enjoy a dual status as family members and peers (Ardelt and Day 2002; Bard and Rodgers 2003). They are also likely to be in frequent contact with each other and to share space, personal history, values, and perception (Ardelt and Day 2002; Cicirelli 1995; Dunn 1985; Fitzpatrick and Caughlin 2002). Data from the 2004 National Survey of Adolescents in Ghana revealed a mean number of 3.3 siblings and 1.1 older siblings in sampled households (own analysis).

Sociological and anthropological studies note that prior to the influx of colonial and religious influences in many African cultures and societies, the socialization of young children was a responsibility primarily accorded to the extended

family (Adomako-Ampofo 2001; Kayongo-Male and Onyango 1984; Mweru 2005). Kayongo-Male and Onyango (1984) assert that elder siblings were highly respected by their younger brothers and sisters and were expected to sacrifice for the younger ones as if they were their own children. The authors state that “this type of responsibility has been carried over to the modern times with older children being expected to put the other children through school if the older ones obtain employment” (p. 20), although it is important to keep in mind that their assertion was made almost three decades ago. Ankrah (1993) also touts the centrality of siblings in family functioning in developing countries.

Religious and colonial influences also led to the abandonment of significant cultural traditions such as initiation ceremonies and rites, but yielded new norms such as family life education in schools and the re-organization of the family structure (Mweru 2005). Mweru explains that these influences and changes affected socialization patterns such that the role of extended family members has diminished and the role of socializing children is largely left to the immediate family, especially parents (Mweru 2005).

2.3. – Research on siblings and sibling relationships: progress in the field

The methodical study of siblings and sibling relationship began in the 1940s, but burgeoned in the early 1980s as it became more widely accepted that siblings play an important role in family relationships and in individual adjustment (Dunn 2002). A review of theoretical and empirical research on siblings suggests that sibling-related

research is guided by social learning and differentiation theories. The majority of studies, however, are predicated on the former. Sibling-related research encompasses a range of developmental stages, populations or samples and topics of inquiry, and has enjoyed methodological advances. In the following sections, I review the principles of social learning theory and differentiation theory and provide an overview of the areas that have characterized the progression of the field.

2.3.a. Social learning theory. Having gained prominence in the late 1970s, social learning theory postulates four main tenets: (1) human behavior is determined by interrelated factors, namely cognitive development, contextual or environmental influences, and personal behavior; (2) individuals are more likely to emulate those closer to them and those with whom they share similar attributes; (3) younger persons acquire new attitudes, behaviors, and skills through observation and social reinforcement; and (4) social systems including the family and community provide important contexts within which the mechanisms of social learning can operate (Bandura 1969, 1977). It is necessary to acknowledge that parts of social learning theory overlap with Bronfenbrenner's social ecology theory, which posits that individuals' development is a function of the evolving environment in which they live (Bronfenbrenner 1977, 1979). The learning processes implied in social learning theory are often cited as reasons why siblings are likely to share similar attitudes, interests, and behaviors. Several studies' findings are consistent with social learning theory. They find robust and positive associations between sibling behaviors and adolescent behaviors in various areas, including: *selecting peer networks/mutual friends* (Barnes 1990; Conger and Reuter 1996; Rende, Slomkowski, Lloyd-Richardson et al.

2005; Rowe and Gulley 1992; Van Der Vorst et al. 2007); *sexual socialization, attitudes, and behaviors* (Kornreich et al. 2003; Leventhal 1970; Wallace 2008); *substance use, in general* (Barnard 2005; Boyle, Sanford, Szatman et al. 2001; Brook, Whiteman, Gordon et al. 1990; Duncan et al. 1998; Duncan, Duncan and Hops 1996; Fagan and Najman 2005; Hall, Henggeler, Ferreira et al. 1992; Khoo and Munthén 2000; Needle, McCubbin, and Wilson 1986); *alcohol use, in particular* (Conger and Reuter 1996; Trim et al. 2006; Van Der Vorst et al. 2007); *cigarette smoking, in particular* (Bard and Rodgers 2003; Ele and Ibeh 2001; Gibbs 2005; Rajan, Lerouz, Peterson et al. 2003; Slomkowski et al. 2005); *sexual activity or sexual debut* (Haurin and Mott 1990; Rodgers and Rowe 1988, 1990; Rodgers, Rowe, and Buster 1999; Rodgers et al. 1992); *concurrent or multiple risk behaviors* (Argys et al. 2006; D'Amico and Fromme 1997; East and Khoo 2005); *attitudes toward sexual activity or attitudes towards risky sexual behavior and adolescent pregnancy* (D'Amico and Fromme 1997; East 1996; East 1998a; East 1998b; East, Felice, and Morgan 1993; East et al. 2009; McHale et al. 2009); *aggression, deviance, or delinquency* (Ardelt and Day 2002; Conger and Reuter 1996; Fagan and Najman 2003; Meek 2008; Patterson 1984; Rowe and Gulley 1992; Slomkowski, Rende, Conger et al. 2001; Stormshak, Bellanti, Bierman et al. 1996); *career exploration and decision-making* (Schultheiss, Palma, Predragovich 2002); and *emotional eating behaviors* (de Leeuw, Snoek, van Leeuwe et al. 2007; Honey, Clarke, Halse et. al 2006; Vandereycken and Van Vreckem 1992). Social learning processes such as modeling and reinforcement can also help explain why the sibling relationship may be characterized by high levels of conflict and rivalry, all the while leading to similarity in adjustment problems and

engaging in risky behaviors (Cicirelli 1994; East and Khoo 2005; Jenkins 1992; Kim, McHale, Crouter et al. 2007; McHale, Whiteman, Kim et al. 2007; Soli et al. 2009; Stocker, Burwell and Briggs 2002). Although social learning among siblings has been studied in a wide array of areas, almost all of existing research has been conducted using samples of white adolescents from United States and Europe (Dunn 2002; Soli et al. 2009; Whiteman, Becerra Bernard, and McHale 2010). Using qualitative and quantitative data sources, the present study will assess any overlaps in the aforementioned areas, all the while recognizing any areas of sibling similarity and difference characteristic of non-Western social and cultural contexts.

Far fewer studies have investigated how and why siblings can be dissimilar. In the next section, I elaborate on the concept of sibling deidentification, out of which a second theoretical orientation has evolved.

2.3.b. Differentiation theory. Despite their shared environment, some siblings grow up to be very different from one another. Relationships between siblings can also be understood using differentiation theory, which submits that siblings establish differences in behavior and personality and occupy different niches (Brody, Stoneman and McCoy 1994; Dunn and Plomin 1990; Dunn and Plomin 1991; Whiteman, Becerra Bernard, and McHale 2010; Michalski and Shackelford 2001; Scarr 1992; Whiteman, McHale, and Crouter 2007a). Done consciously or not, siblings who differentiate from one another exhibit a phenomenon known as ‘sibling deidentification,’ a term coined by Alfred Adler (Ansbacher and Ansbacher 1956). When siblings focus on dissimilar niches and develop distinct qualities, they protect

themselves from overt rivalry, envy, and being compared by other family members or society at large (Feinberg and Hetherington 2000; Feinberg, McHale, and Cumsille 2003; Festinger 1954; Schachter 1982; Schachter, Shore, Feldman-Rotman et al. 1976; Tesser 1980). Siblings may also differentiate themselves from one another to reduce competition for parental investments, including attention and favoritism (Michalski and Shackelford 2001; Sulloway 1996).

Differentiation is also associated with birth order. Children experience situations and circumstances within the family in markedly different ways based on their birth order, affecting their developmental differences (Plomin, Chipuer, and Neiderhiser 1994; Sulloway 1996). First-borns and last-borns, for example, experience a similar family environment when it comes to parental resources: first-born children take full advantage of parental resources because there are no siblings with whom to compete, while last-borns generally do not have to experience parental resource dilution since there are no younger siblings (Hertwig and Solloway 2002; Milne and Judge 2009; Salmon 2003; Sulloway 1996).

The situation varies for middle-borns whom (Kidwell 1982) describes as the “human sandwich.” Middle-borns are more likely to craft a different niche, as a way to reduce competition with both older and younger siblings for parental investments (Belsky, Youngblade, Rovine et al. 1991; Hertwig and Sulloway 2002; Rohde, Atzwanger, Butovskaya et al. 2003; Sulloway 1996). Scholars argue that middle-borns tend to be lumped together with last-borns as ‘later-borns’ and that their role in the family has been neglected in birth order research (Rohde et al. 2003; Saroglou and Fiase 2003; Sulloway 1996). These scholars maintain that middle-born children need

to be distinguished since their experiences are differentiated by virtue of their birth order and especially when another child is born within five years of their own birth – a critical time for personality and behavioral development (Belsky et al. 1991; Salmon and Daly 1998; Saroglou and Fiasse 2003). Even though the present study does not distinguish between first-borns, middle-borns, and last-borns, it emphasizes the role and effect of older siblings on adolescents' development, sexual and reproductive health decision-making, and likelihood of communicating about sex-related matters.

Researchers have also noted that with regard to personality and reproductive behaviors first- and middle-born children represent the two ends of a continuum, while last-born children exhibit greater similarity to first-borns in terms of behavior, personality, achievements, perception, and orientation to family (Lindert 1977; Salmon 2003; Salmon and Daly 1998; Saroglou and Fiasse 2003). Feinberg et al. (2003) find that greater differentiation can lead to more positive relationship qualities. While this dissertation study cannot systematically tease out birth order effects, it looks to understand the extent to which Ghanaian adolescents identify themselves according to their birth order and that of their sibling. Once again, the abovementioned studies on birth order and sibling differentiation were all conducted among white European, American, or Australian sibling samples. The present study will therefore examine whether characteristics of sibling differentiation are relevant to Ghanaian adolescents or whether new patterns arise in this non-Western context.

2.3.c. *Two sides of the same coin?* At first glance the two theories may seem dissimilar because they highlight different aspects of sibling interactions, but they can

work in tandem and be complementary. Social learning theory focuses on the opportunities for learning between individuals who share similar attributes and who may emulate each other's behaviors. Differentiation theory highlights factors among individuals that may lead to sibling deidentification. Common to both theories is the role of similarity even though it produces different outcomes. Also common to both is an emphasis on affective characteristics (e.g. relationship quality) as well as structural characteristics (i.e. birth order, age spacing, and gender) to determine the degree of similarity and difference among two individuals and how these may be exhibited concurrently (Shanahan, Kim, McHale et al. 2007; Whiteman et al. 2010; Whiteman et al. 2007a). Whiteman and colleagues (2010) observed that up until 2010, no study had ventured to directly examine sibling influences processes. Instead, previous studies made inferences about these processes and invoked observational learning and sibling deidentification mechanisms as *post hoc* explanations of the similarities and differences observed between siblings (Whiteman et al. 2010). In addition, they observe that prior studies had examined these mechanisms as singular and independent. In a game-changing study, Whiteman et al.'s (2010) examined these learning processes *ad hoc* by directly assessing "younger siblings' perceptions of the extent to which they model and/or deidentify from their older siblings" in four domains (p. 643). The authors found three main patterns: (1) evidence of younger siblings modeling similarity, competing with their sibling in some domains, but not trying to be different; (2) younger siblings trying to be different, but not competing with their siblings in any of the four domains; and (3) younger siblings who did not seem to use their older siblings as comparative references, but also spent less time with older

siblings (Whiteman et al. 2010). These findings, according to the authors, emphasized how siblings can simultaneously represent sources of social influences and social comparison within the family (Whiteman et al. 2010). This dissertation study contributes to the field by exploring learning mechanisms, manifested independently or concurrently. Nevertheless, it is limited by its post-hoc explanations for adolescent social learning and differentiation.

2.3.d. Developmental stages. A substantial proportion of sibling-related studies has focused on infancy and childhood (Bank and Kahn 1997; Brody et al. 1994; Dunn 1985; Edwards et al. 2006; Gallagher, Powell and Rhodes 2006; Koch 1954, 1960; Lamb and Sutton-Smith 1982; Sutton-Smith and Rosenberg 1970). Research on sibling interactions and relationships during adolescence took root in the early 1990s and continues to grow (Brody 1998; Buhrmester and Furman 1990; Rodgers and Rowe 1990; Rodgers et al. 1992; Rowe, Rodgers, Meseck-Bushey et al. 1989; Noller 2005). Research on sibling relationships during young, middle, and late adulthood has also continues to increase (Bedford 1995; Cicirelli 1991; Cicirelli and Nussbaum 1989; Corti 2009; Hinde 1979; Scharf, Shulman, Avigad-Spitz 2005; Sptize and Trent 2006; Voorpostel and Blieszner 2008; Weaver, Coleman, and Lawrence 2003). The present study's focus is on adolescence as an important developmental stage during which adolescents should be furnished with the right tools to enable them to make healthy decisions as they transition to adulthood.

2.3.e. Populations and Samples. Scholars called attention to the paucity of research on siblings from minority races as well as non-Western cultures despite the ethnographic and sociological evidence that highlights the significance of kin relationships and the important role of siblings play in individual development from an early age in these races and cultures (Brody and Murry 2001; Dunn 2002; East and Khoo 2005; Foster 1983; Hill, Murry, and Anderson 2005; Kayongo-Male and Onyango 1984; McHale et al. 2009; McHale et al. 2007; Nuckolls and Krishnayya 2010; Sudarkasa 1980; Opong 1987; Weisner 1989; Young 1974; Zukow 1989) as well as ample demographic data documenting the higher number of siblings in minority families compared to European American ones (Whiteman et al. 2010). Studies that have included minority samples have tended to do so in comparison to European American samples (Soli et al. 2009), and/or to focus on vulnerabilities such as single-parent families (Brody and Murry 2001), on delinquent behaviors including substance use and risky sexual behaviors (Duncan et al. 1998; East and Khoo 2005) and on adolescent pregnancy (East et al. 1993; East and Khoo 2005; Gee et al. 2003). Another gap in the field involves research on half-siblings and step-siblings that reflects changing family structures and societal norms (Dunn 2002; O'Connor et al. 2001). The dearth of sibling-related studies conducted with African samples is detailed in section 2.5 of this chapter.

To redress some of these oversights, a new crop of studies has examined the nature and correlates of sibling relationships among racial and ethnic minorities as well as non-Western cultures. For instance, studies using Mexican-American populations have investigated a variety of topics including the role of familism in

adolescent sibling relationships (Updegraff, McHale, Whiteman et al. 2005) as well as differential treatment of siblings (Brody, Stoneman and McCoy 1992; Conger and Conger 1994; McHale and Pawletko 1992; McHale, Updegraff, Jackson-Newsome et al. 2000a; McHale et al. 2007). Voorpostel and Schans (2010) conducted research comparing adult sibling relationships among Caribbean, Moroccan, Turkish, and native Dutch groups. Studies using African American populations have expanded their scope to include research on sibling relationships and influence in two-parent families (McHale et al. 2007; Whiteman et al. 2010) as well as risk and *protective* effects of sibling relationships on educational outcomes and achievement (Benin and Johnson 1984; Duncan, Boisjoly and Harris 2001; Loury 2003; Soli et al. 2009).

A few studies have examined sibling-related characteristics and adolescent sexual and reproductive health behaviors in Africa (discussed below), and one in Ghana. The latter examined the likelihood of 12-24 year olds engaging in risky behaviors based on a number of social and demographic characteristics, including having an older sibling who experienced a premarital pregnancy (Karim et al. 2003). This dissertation study's focus on 12-19 year old adolescents as well as communication and interactions between adolescents and their siblings regarding health-related matters adds to the literature and enhances our understanding of sibling relationships in Ghana.

2.3.f. Methodological and theoretical advancement. The field of sibling research has also evolved in its theoretical and methodological orientations. While the concept of sibling differentiation/deidentification was introduced in the 1970s (Schachter et al. 1976), it was not until the late 2000s that the theory of differentiation began to be integrated into the study of sibling relationships. The field had been dominated by social learning theory and some researchers have called for studies that investigate social learning and differentiation as competing processes (Whiteman et al. 2010; Whiteman, McHale and Crouter 2007b).

Methods to study sibling relationships have also grown in complexity, including direct measures of adolescents' perceptions of sibling influence and modeling (Whiteman et al. 2007b), measures of relationship quality (Rodgers et al. 1992), the study of multiple in-family pairs (Kramer and Bank 2005), and a wide age gap in sibling dyads (Kowal and Blinn-Pike 2004). Equally important in sibling research has been an increase in longitudinal studies, qualitative studies, and studies that employ a life course perspective (East et al. 2009). The field has also witnessed a surge in complex statistical methods including multilevel latent growth (Duncan et al. 1998) and event history analysis (Diop-Sidibe 2005; Duncan et al. 2001; Munthre 2009). The present study's combined analysis of focus group discussions, in-depth interviews, and survey add to the methodological complexity of studying sibling relationships and the role of sibling in adolescent development.

2.3.g. Inquiry. In as much as sibling research continues to evolve, the topics of research have remained quite similar. Studies – particularly those on adolescence –

have mainly concentrated on the role and influence of siblings on sexual initiation, sexual activity, and delinquent behaviors such as substance abuse. Although this study doesn't depart from conventional research on sexual and reproductive behaviors, it adds to the field by investigating the contributions of siblings to risky *and* protective adolescent sexual and reproductive health knowledge, attitudes, and behaviors in the Ghanaian context.

The next sections present an overview of existing research on siblings and sibling relationships.

2.3.h. Sibling relationships. The sibling relationship is most likely the longest an individual will experience in his/her lifetime, providing physical and emotional contact throughout the life course and usually outlasting relationships with parents and friends (Cicirelli 1991, 1995; Dunn 2002; Floyd and Parks 1995; Gallagher et al. 2006; Sanders 2004). Existing research suggest that the sibling relationship serves as an important medium for individual development and adjustment as well as family functioning (Branje et al. 2004; Dunn 2002; Dunn and Plomin 1990; Kim et al. 2007; Kowal and Blinn-Pike 2004; Kramer and Bank 2005; McGuire, Dunn and Plomin 1995; Stocker et al. 2002). As they interact and communicate, siblings provide a context for learning social norms, developing social skills and risk cognitions as well as managing conflict (Kowal and Blinn-Pike 2004; Pomery et al. 2005). Their typically frequent involvement also makes siblings salient agents of socialization, role models, and comparative models, both in positive and negative ways (Kowal and

Blinn-Pike 2004; McHale et al. 2009; McHale et al. 2001a). Also through interaction and communication, siblings become sources of intimacy, emotional support, love, and security (Buhrmester 1992; Buhrmester and Furman 1990; Fitzpatrick and Caughlin 2002; Furman 1995; Furman and Buhrmester 1985; Updegraff and Obeidallah 1999; Yeh and Lempers 2004). Siblings serve as teachers, companions, confidantes, counselors, and caretakers (Bryant 1992; Cicirelli 1994; Dunn 1996a; Dunn 1996b; Dunn 1996c; Fitzpatrick and Badzinski 1985; Gallagher et al. 2006; Goetting 1986; Howe, Aquan-Assee, Bukowski et al. 2001; Kornreich et al. 2003; McHale et al. 2006b; Maynard 2002; Minnett, Vandell and Santrock 1983). Studies confirm the effects of siblings in one another's development even after shared family characteristics are accounted for and these findings are said to highlight the unique and sometimes influential contribution of siblings in shaping their brothers' and sisters' attitudes and behaviors (Averett et al. 2010; D'Amico and Fromme 1997; Pike, Coldwell and Dunn 2005; Soli et al. 2009; Trim et al. 2006; Tucker, Updegraff, McHale et al. 1999) Boyle et al. 2001; Duncan et al. 1996; Feigelman and Lee 1995; Goetting 1986).

Just as the definition of a sibling can be complex, so can the characteristics that shape sibling relationships across contexts, cultures, and developmental stages. For example, a number of studies highlight the relevance of cultural values on the sibling relationship (Knight and Kagan 1982; Soli et al. 2009; Spencer 1995; Updegraff et al. 2005; Weisner 1989; Zambrana, Dorrington and Hayes-Bautista 1995) as well as gendered ideologies and gender socialization (Kornreich et al. 2003; McHale et al. 2001b). In his assessment of sibling relations across several cultures, (Cicirelli 1994)

asserts that sibling relationships are maintained for a variety of reasons, ranging from discretion to obligation. (Corti 2009) argues that examining mundane talk and social interactions between siblings sheds light on the types of topics that siblings tend to broach in conversation. Mundane talk and social interactions can also offer a clearer understanding of the sibling relationship. In the next section, I offer a summary of commonly cited factors that contribute to the nature and quality of sibling relationships.

2.3.i. *The quality of relationships.* Depending on the developmental period, siblings play different roles in each other's lives. Thus, sibling relationships fluctuate over time and experience varying levels of intensity and activity (Bank and Kahn 1997; Cicirelli 1995; Dunn 1996a). In early and middle childhood, siblings tend to interact more frequently with each other, share similar experiences, and enjoy a somewhat stable relationship (Dunn 2002; Gallagher et al. 2006). How relevant sibling relationships remain to adolescents during this period of transition remains to be appreciated in understudied contexts such as Ghana.

Studies conclude that interactions between family subsystems can also have an effect on the quality of sibling relationships (Brody et al. 1992, 1994; Cicirelli 1995; Conger and Reuter 1996; Connidis 2007; Furman 1995; Kowal and Blinn-Pike 2004; Kramer and Bank 2005; McHale and Crouter 1996; Patterson, Reid and Dishion 1992; Reese et al. 2000; Soli et al. 2009; Stoneman, Brody and MacKinnon 1986). Despite this important factor, the relationships between family subsystems cannot be determined in the present study unless otherwise mentioned by adolescents in the

focus group discussions or in-depth interviews. I address how future studies can incorporate these measures in Chapter 6.

The quality of the relationship can also be affected by affective dimensions, structural dimensions, or any combination of both. I elaborate on these below.

2.4. – Affective dimensions of sibling relationships

2.4.a. Warmth, nurturance, and closeness. Warmth, nurturance, and closeness are expressed by levels of affection, emotional intimacy, cooperation, interest, comfort, etc. In a seminal study examining sibling relationship quality across different age groups, Buhrmester and Furman (1990) observed that siblings in third grade reported higher levels of nurturance from older siblings than did those in ninth and twelfth grade. The authors attributed the decrease in warmth and closeness to the reduced amount of time that siblings spent interacting with each other. Despite these lower levels of sibling warmth and closeness during adolescence, Buhrmester and Furman (1990) explain that siblings continue to experience strong emotional attachment.

Siblings who enjoy positive ties may be less likely to engage in adverse behaviors such as risky sexual practices. In a study investigating adolescents' discussions with older siblings about safe sexual practices, Kowal and Blinn-Pike (2004) found that adolescents who modeled their sibling's sexual attitudes and sexual behaviors also reported a warm and nurturing relationship with their older sibling.

These adolescents reported less risky attitudes regarding acceptable sexual behavior for people their age and higher levels of communication about condoms with their partners (Kowal and Blinn-Pike 2004). Likewise, McHale, Bissell, et al. (2009) found a stronger association between similarity in attitudes towards sexuality and sibling relationship quality, where younger siblings who reported closer relationships with their older siblings also reported less risky attitudes towards sexuality.

Still, positive sibling relationship can also lead to greater vulnerability. Similarities in drug use and sexual activity maybe more pronounced among siblings who share warm and close relationships (Ary et al. 1993; Rowe and Gulley 1992; Slomkowski et al. 2005). Slomkowski et al. (2001), for example, found similarity in delinquent behaviors among male siblings who shared warm and supportive relationships.

Warmth, nurturance, and closeness among siblings can also be related to communication satisfaction. A study of siblings 30 years and older showed that credibility and similarity between siblings were positively correlated with sibling satisfaction and communication (Martin, Anderson and Rocca 2005; Rocca and Martin 1998). Myers (1998) found that interpersonal solidarity, individualized trust, and self-disclosure positively predicted sibling communication satisfaction, with interpersonal solidarity as the strongest predictor. Similarly, Martin, Anderson and Mottet (1997) found that self-disclosure was significantly and positively related to understanding among young adults. In his examination of sibling relationships in late adulthood, Cicirelli (1995) concluded that closeness increased with age, was linked to increased communication, and added value to verbal interactions. These findings support

Buhrmester and Furman's (1990) assertion that sibling relationships become more egalitarian as siblings get older. In addition, research shows that sibling closeness, communication, and support are higher among participants with fewer siblings (Milevsky and Levitt 2005).

A few studies have explored the link between geographical and emotional proximity. Shortt and Gottman (1997)'s study on young adult siblings concluded that geographical distance was not related to closeness. Rather, emotionally close siblings showed more affection and validation than did emotionally distant siblings. A similar study found that those who reported emotional distance in their sibling relationship usually cited three reasons: their childhood years, tragedy/death/illness, and a history of emotional distance in the family (Folwell, Chung, Nussbaum et al. 1997).

Sibling relationships may also affect individual's academic outcomes and achievement (Duncan et al. 2001; Maddox and Prinz 2003; Masten et al. 1995; Paik and Walberg 2007 ; Soli et al. 2009; Whiteman et al. 2007a; Whiteman et al. 2007b), especially among racial or ethnic minorities. In a study conducted among ethnically diverse adolescents, Milevsky and Lewitt (2005) found that increased support from a brother led to lower teacher-reported behavioral problems among Hispanics. Higher levels of sibling support have also been associated with fewer academic problems among African American students (Crosnoe and Elder 2004). In addition, Widmer and Weiss (2000) observed a positive association between supportive sibling relationships and stronger school engagement, although this finding only applied to children who viewed their older siblings as successful. Gaining an understanding of factors that

make siblings' attitudes and behaviors more attractive to Ghanaian adolescents is key to creating programs that can use siblings as positive mentors.

2.4.b. Conflict and rivalry. Conflict and rivalry are characterized by quarreling, antagonism, aggression, competition, hostility, irritation, coercion, disharmony, etc. The opportunities for conflict and rivalry are generally highest during childhood and early adolescence when siblings are likely to spend more time interacting with each other and decrease substantially during middle and late adolescence (Buhrmester 1992; Bullock and Dishion 2002; Cicirelli 1994; Furman and Buhrmester 1985; Furman and Buhrmester 1992; Slomkowski et al. 2005). Brody (1998) argues that conflict and rivalry do not necessarily have to be considered negative interactions because a healthy level of conflict between siblings can help individuals learn about how to manage conflict, express feelings, and dialogue openly. East and Khoo (2005), on the other hand, observed that conflict in the sibling relationship predicted younger siblings' risky behaviors, including sexual debut. East, Reyes and Horn (2007) also found that frequent companionship with an elder sister was associated with a five-fold increase in the likelihood of teenage pregnancy and frequent conflict with an older sister who experienced a teenage birth was marginally associated with reduced likelihood of teenage pregnancy. Similarity has also been observed among siblings in their anti-social or delinquent behaviors even though they described their relationship as conflictual (Bank and Kahn 1997; Snyder, Bank and Burraston 2005). Slomkowski et al. (2001) showed that an older male sibling's

delinquency predicted a younger male's delinquency despite reporting high hostility or warmth in their relationships.

A longitudinal study on the family system reported that siblings who had different parent-child relationships also reported greater warmth and lower conflict in their relationship with one another (Feinberg et al. 2003). A subsequent study found that siblings' reports of differentiation were related to reports of higher levels of conflict and lower levels of warmth in the sibling relationship (Whiteman et al., 2007a). These inconsistencies may be explained by the nonlinear ways in which sibling dynamics are related to sibling relationship qualities (Whiteman et al., 2007a). As such, low to moderate levels of differentiation may reduce competition and rivalry but maintain warmth, while high levels of differentiation may result in relationships with very low levels of involvement or high levels of conflict (Whiteman et al. 2010). Overall, studies show that siblings who report warm, nurturing, and close relationships exhibit more similarity in behaviors than siblings who report conflict or disharmony in their sibling relationships. Exploring how affective dimensions of sibling relationships are exhibited in Ghanaian adolescents' daily lives and whether they affect their attitudes and behaviors are important to the objectives of the present study.

2.5. – Structural dimensions of sibling relationships

The quality of sibling relationships can also be shaped by structural dimensions, including birth order, age spacing, age, and gender. In the next section, I consider research examining these characteristics effects on sibling relations.

2.5.a. Birth order. In line with social learning theory, younger siblings are more likely to be influenced by their older siblings' behavior than the other way around. This tendency has been observed in both cross-sectional and longitudinal studies (Abramovitch et al. 1986; Ardel and Day 2002; Corti 2009; Conger and Little 2010; Cicirelli 1994, 1995; Haurin and Mott 1990; Hetherington 1994; McHale et al. 2009; Slomkowski et al. 2005; Soli et al. 2009; Widmer 1997). Cicirelli (1994) explains that siblings position themselves in a hierarchy dictated by societal norms and are expected to behave in ways that are peculiar to that position. Through formative socialization experiences, cooperative tasks and activities, companionship, and conflict, sibling interaction can significantly impact younger siblings' cognitive and skill development (Cicirelli, 1995).

Studies examining sibling interactions have repeatedly found that younger siblings often regard their older siblings as powerful and influential sources of guidance, knowledge, support, and advice (Cicirelli, 1995) as well as sources of protection, nurturance, security, and empathy (Tucker, Barber, and Eccles 1997). Younger siblings may emulate the attitudes and behaviors of their older siblings based on shared family experiences or a perception that they are of higher status (Abramovitch et al. 1986; Bandura 1977; Cicirelli 1994; Kornreich et al. 2003; McHale et al. 2009; Rowe and Gulley 1992) Buhrmester and Furman 1990; Furman and Buhrmester 1985; Vandell, Minnett, and Santrock 1987; Dunn 2002).

The transition from childhood to adolescence – characterized by biological and psychosocial transformations that manifest themselves as physical and emotional changes – is an important turning point in the life course (Petersen and Taylor, 1980;

Carey, 1986; Baxter and Bullis 1986). Although parents and peers are often regarded as role models and agents of socialization during this period of change, older siblings who have already experienced these changes may also serve as such (Carey, 1986). Older siblings can share their experiences, provide social and emotional support, and facilitate younger siblings' transition to adulthood (Carey, 1986; Baxter and Bullis 1986; Steelman, Powell, Werum et al. 2002). Older siblings can also provide opportunities for younger siblings to interact with and sometimes emulate the behaviors of older siblings' peers (Rodgers et al. 1992; Olneck and Bills. 1979). These types of opportunities are more likely if the siblings are of different gender and have a wider age gap (Rodgers et al. 1992). In a longitudinal study examining high school students, Kowal and Blinn-Pike (2004) found that adolescents (average of 17 years) who discussed safe sexual practices with their older siblings (average of 21 years) were more likely to report positive attitudes towards safe sex. These adolescents were also more likely to report that they could buy and use condoms as well as communicate about condom use with partners. Their findings, the authors argued, underscore the sibling relationship as a useful entry point for promoting positive change in youths' behavior and adjustment (Kowal and Blinn-Pike 2004).

Sibling similarity and role modeling do not always engender positive outcomes. Particularly during adolescence, older siblings may also lead younger ones to engage in risky behaviors or behaviors that could threaten their safety. Several studies show that younger siblings are at a significantly higher risk of smoking cigarettes and using alcohol and other drugs if their older sibling also uses them (Rende et al. 2005; Fagan and Najman, 2005; Slowkowski et al., 2005; Slowkowski et

al., 2001; D'Amico and Fromme, 1997; Tucker et al. 1999; Argys et al. 2006; Ouyang 2004; Whiteman et al., 2007a; Pomery et al., 2005; Needle et al., 1986; Van Der Vorst et al., 2007). Similarly, studies show that older siblings' sexual activity is positively correlated with younger siblings' sexual debut (Olenick 1997; Widmer 1997; Haurin and Mott 1990; Rodgers et al. 1992) and risky sexual behaviors (Rodgers et al., 1988; McHale, Bisell, et al. 2009). Another subset of studies indicates that older siblings' deviant or delinquent behaviors predict those of their younger siblings (Argys et al. 2006; Ardel and Day, 2002; Akers, 1998; Conger and Reuter, 1996; Rowe and Gulley, 1992; Morrongiello and Bradley, 1997; Slomkowski et al. 2001, 2005; Snyder et al. 2005; Averrett et al. 2010). In the end, negative role modeling by older siblings can undermine a younger sibling's sense of competence and chances of success in life (Ardelt and Day, 2002; Bank and Kahn, 1997).

Birth order can also lead to differentiation. McHale, Updegraff, Helms-Erickson et al. (2001) observed that first-born adolescents become more different from their younger siblings over time, with regard to their ideologies about gender. Schachter et al.'s (1976) of college studies also found that first-born and second-born exhibited greater differences in their personality than did 'jump-pairs' (i.e. first-born and third-born siblings, etc.). The consistent evidence of younger siblings being impacted by their older siblings' knowledge, attitudes and behaviors gives me reason to believe that the dynamics among Ghanaian adolescents and their siblings will not be any different.

Using data from the National Longitudinal Study of Adolescent Health (AddHealth), Averett et al. (2010) explored whether parental supervision served as a

mediator between birth order and risky adolescent behavior. The authors found that in families with more than one child, first-borns experienced closer supervision by their parents than later-born siblings. The increased levels of supervision, they concluded, were associated with reduced likelihoods that adolescents used substances and participated in delinquent activities. They also found that a positive relationship between risky behavior and the presence of an older sibling persisted even after parental supervision was accounted for (Averett et al. 2010). Using PNG survey data, Kumi-Kyereme et al. (2007b) also found that high levels of parental involvement and monitoring reduced the likelihood of adolescents engaging in risky behaviors. Whether parental involvement/monitoring, birth order, and presence of sibling simultaneously affect adolescent behaviors is not addressed in this present study and will need more research in the Ghanaian context.

2.5.b. Age spacing. Related to the effect of birth order is that of age spacing among siblings. Bard and Rodgers (2003) propose that a larger age interval offers more years for observation and reverence from younger siblings, engendering a more pronounced desire to imitate and model behaviors. The wider age gap also increases the likelihood that older siblings will become sources of aspiration for younger siblings (Bard and Rodgers 2003). Results from McHale et al.'s (2009) longitudinal study showed that younger siblings in more widely spaced dyads reported less risky attitudes towards sexuality. At the same time, though, other studies find that a smaller age gap between siblings creates more opportunities for similarity in attitudes and behaviors (Dunn and Kendrick 1981). Trim et al. (2006)'s study on alcohol use among

siblings also found that even after controlling for peer and parental characteristics, an older sibling's alcohol use predicted a younger sibling's alcohol use, particularly if they were close in age. Furthermore, Buhrmester and Furman (1990) found that siblings who were four years or fewer apart tended to report higher levels of warmth, closeness, affection, and admiration than siblings with a wider age interval. Other studies have also concluded that siblings who are closer in age were also more likely to have similar attitudes towards risky sexual behavior and substance use (McHale et al. 2009; McGue et al. 1996; Feinberg and Hetherington 2000). I concur that the larger age gap creates more opportunity for adolescents to observe and imitate their older sibling's attitudes and behaviors. In Ghana, it is conceivable that older siblings set the bar for what is acceptable and attainable in their lives as well as what mistakes to avoid as they grow up, more so than do siblings that are closer in age to adolescents.

2.5.c. Age. Research on the effects of age on sibling relations has produced mixed results. On one hand, longitudinal studies demonstrate that as siblings age, the nature of their relationship typically becomes increasingly egalitarian and symmetrical (Buhrmester and Furman 1990; Buhrmester 1992; Cicirelli, 1995; Fowler 2009; van de Vorst et al. 2007). Other studies point to a curvilinear relationship where siblings feel the most closeness during childhood, adolescence, and late adulthood and least closeness during early and middle adulthood (Atchley, 1977; Cumming and Schneider, 1961). A third set of studies suggests that during early and middle adulthood, siblings experience more positive relationships and closeness (Pulakos 1987; Beford 1995; Martin et al. 2005; Fowler 2009; Corti 2009; Connidis and

Campbell, 1995; Stocker, Lanthier, and Furman, 1997; Rittenour, Myers, and Brann 2007). Fowler (2009) examined communication motives among siblings and whether they varied according to age group and found that siblings aged 18-34 years were motivated to communicate by intimacy, obligation, and mutuality. Those aged 35-40 years and 50-64 years were motivated by obligation as a negative predictor of relational satisfaction and mutuality as a positive predictor. Siblings aged 65 years and above were mainly motivated by comfort (Fowler 2009). These results point to the variety of motivators and how they change over time. With no prior studies on sibling relationships and age conducted in Ghana, it is difficult to determine how age will affect sibling relationships.

Age: younger siblings. As discussed, several theoretical and empirical studies have found that the older the role model, the more likely younger adolescents seek to imitate his/her behaviors (Bandura 1977; Brody et al. 1983), even if younger adolescents do not participate in the activities of older siblings (Ardelt and Day, 2002). However, some research findings defy the theoretical assumptions of social learning theory, noting instances when younger siblings exhibit riskier and more adverse attitudes and behaviors than those of their older siblings. Michalski and Shackelford (2002) found that younger siblings reported a higher number of sexual partners compared to their older siblings. Using data from the 1979 cohort of the National Longitudinal Survey of Youth (NLSY79), Rodgers et al. (1992) found that younger siblings tended to initiate sexual activity at an earlier age than their older siblings. In a study using a more recent cohort (NLSY97), first-borns were again less likely to have engaged in risky behaviors (initiating sexual intercourse as well as tobacco, alcohol, or

marijuana use) than their later-born counterparts (Argys et al. 2006). Another longitudinal study conducted by Rodgers and Rowe (1998) revealed that later-born children of both sexes were more likely to be sexually active at earlier an age than their older siblings. Additionally, results from a study using a representative sample of 18-year old urban Australians showed that middle-born males reported a younger age at first sexual intercourse than first-born males while last-born females reported a younger age at first sexual intercourse than first-born females (Milne and Judge 2009). Lastly, in their study assessing the role of parental supervision as a potential mediator between birth order and adolescent risky sexual behaviors, Averett et al. (2010) found that adolescents with older siblings were seven percentage points more likely to have recently smoked than adolescents without older siblings. Likewise, adolescents who had an older sibling were three percentage points more likely to have engaged in sexual intercourse than their firstborn counterparts. The authors concluded that parental supervision played an important role, but could not fully explain the relationship between birth order and risky behavior (Averett et al. 2010).

Age: reverse influence. A lesser studied phenomenon is that of reverse sibling influence, whereby younger siblings influence the behaviors and adjustment of older siblings. If sibling relationships become more egalitarian over time, it is conceivable that the influence of younger siblings on older siblings would increase during adolescence and beyond (Van Der Vorst et al. 2007). A handful of studies provide evidence of the influence of younger siblings on older siblings in the areas of emotional eating behaviors (de Leeuw et al. 2007) as well as prosocial behavior and individual adjustment (Branje et al. 2004; Pike, Coldwell, and Dunn 2005; Soli et al.,

2009). Soli et al. (2009) point out a limitation of many studies in that birth order and age are not only often confounded, but also highly correlated and sometimes difficult to tease out. Reverse influence and younger siblings engaging in riskier behaviors than their older siblings are not explored in the quantitative analyses undertaken in the present study, but any evidence from the focus group discussions and in-depth interviews are noted and discussed.

2.5.d. Gender. The gender composition of the sibling dyad also appears to have an effect on sibling interaction. According to Maccoby (1998), older sisters often assume the role of teacher and advisor while younger sisters assume the role of a student with more ease than older brother-younger brother dyads. Maccoby (1998) also explains that for a given age, girls tend to be more mature, competent, and more adept in their social skills than boys (Maccoby 1998). Cicirelli (1994) finds that older sisters generally have an important mediating role between older brothers and younger siblings when inevitable conflicts develop.

Existing research converges on two related findings: first, females usually report higher levels of warmth and closeness toward their siblings than do males (Buhrmester and Furman 1990; Floyd 1995, 1996; Milevsky, 2005; Connidis and Campbell 1995; Connidis 1992). Second, when compared to cross-gender sibling dyads, same-gender sibling dyads share more companionship and time together, engage in similar activities and behaviors, and identify more with one another (Bandura, 1969; Bowerman and Dobash 1974; Sutton-Smith and Rosenberg, 1970; Slaby and Frey, 1975; Longstreth et al., 1975; Dunn and Kendrick, 1982; Carey, 1986;

Rodgers et al., 1992; Rowe and Gulley, 1992; Ardel and Day, 2002; East and Khoo, 2005; McGue, Sharma, and Benson, 1995; Ardel and Day, 2002; Furman and Buhrmester, 1985; Dunn, 1983). Not surprisingly, same-gender sibling dyads tend to report the highest levels of social learning, warmth, and closeness (Sutton-Smith and Rosenberg, 1970; Furman and Buhrmester, 1985; Pulakos 1987; Connidis and Campbell 1995; Cicirelli, 1994; Stoneman, Brody, and MacKinnon, 1986; Tucker et al. 1997; Slowkowski et al., 2001, 2005; McHale, Bissell, and Kim, 2009) , but also higher levels of conflict and rivalry (Buhrmester and Furman 1990; Furman and Buhrmester 1985). In a study examining closeness among siblings in young adulthood, Floyd's (1996) findings revealed that females and males considered self-disclosure and mutual activities to be as important as closeness. However, self-disclosure was more important than closeness in sister-sister dyads than in sister-brother and brother-brother dyads. In brother-brother dyads, shared activities trumped closeness (Floyd 1996). Cole and Kerns (2001) showed that same-gender male dyads reported less caring, less intimate exchanges, and increased conflict than cross-gender dyads or same-gender female dyads. Another study examining communication motives among siblings according to gender found that females who talked about their sister(s) tended to report comfort as a motivator more often than did the remaining sibling dyad types. Also, females who talked about either a brother or sister were more likely to report intimacy as a motivator than were males who talked about their brothers (Fowler 2009).

The effect of the gender composition of sibling dyads is often examined within the context of risk-taking behaviors, sexual behaviors, and early pregnancy. McGue et

al. (1995) reported a stronger association between siblings' alcohol use for same-gender siblings than for cross-gender sibling pairs. Studies have also consistently found a positive and significant relationship between risk health and sexual behaviors among same-gender sibling dyads versus cross-gender dyads (Rowe and Gulley, 1992; East and Kooh 2006; Rowe, Rodgers, Meseck-Bushey, and St. John 1989). A longitudinal study on attitudes towards sexuality demonstrated that similarity was most predicable among same-gender siblings pairs (McHale, Bissell, et al. 2009).

Some scholars have observed that for younger siblings, no matter their gender, an older brother may appear as a greater authority figure and be more admired than an older sister would be (Avtgis, Martin, and Rocca 2000; Brook et al. 1990; Sutton-Smith and Rosenberg 1970). Likewise, Kornreich et al. (2003) found that having a sexually active older brother increased the odds of initiating sex among younger siblings, regardless of their gender, but found no effect of an older sister's sexual behavior on a younger sibling's initiation of sexual activity. Ardel and Day (2002) also found a significant effect of having a brother on younger male and female siblings engaging in deviant behaviors.

Compared to females with no family history of teenage births, young females whose sister had had a teenage birth were up to five times more likely to experience a teenage pregnancy (East, Reyes, and Horn 2007; East and Jacobson 2001; Cox, Emans, and Bithoney 1993). Similar research has shown that having an older sister who experienced an adolescent or premarital birth was associated with a younger sister's earlier initiation of sex, higher frequency of sex, increased number of lifetime partners, as well as increased likelihood of pregnancy and childbearing (East et al.,

1996; Kirby, 1999; Kirby 2001; East, Reyes, and Horn, 2007; Hardy, 1999; East and Jacobson, 2001; East and Kiernan, 2001; Diop-Sidibé 2005; Munthre 2009).

The tenets of social learning help to explain the ways in which a teenager's childbearing might increase her siblings' pregnancy risk: social modeling would suggest that an older sister's experience with premarital pregnancy and childbirth might give legitimacy and permission to becoming a parent during adolescence (Bandura 1977; East, Slonim, Horn, Trinh, and Reyes, 2009). By seeing their sister in her role as a mother (as an adult) and members of her family and neighborhood accepting her in that role, younger siblings may attach less stigma to being an adolescent parent and become more accepting of it (East, Slonim, Horn, Trinh, and Reyes, 2009). In the same way, social learning theory can also help to explain how (younger) siblings may avoid teenage pregnancy or risky behaviors, having learned from its potentially negative consequences.

A number of studies have shown more pronounced levels of competition, rivalry, and differentiation among same-gender dyads and those closer in age (Feinberg and Hetherington 2000; Schachter et al. 1976). Still, not all studies about siblings have found explicit gender differences. Older siblings' delinquent behaviors, for example, have been related to committing offences among both younger brothers and sisters (Slomkowski et al., 2001). Also, a multi-group model testing did not reveal significant differences between same-gender and cross-gender dyads regarding alcohol consumption (Van der Vorst (2007). Again, the compelling evidence suggests that sibling communication and interaction in Ghana will also be more prevalent in same-

gender sibling dyads. The potentially distinct role of older brothers on younger siblings' attitudes and behaviors remains to be studied in this context.

2.5.e. Moderate to weak effects. Although associations between siblings' characteristics have been consistent across studies, researchers caution that their effects tend to be small to moderate in size (Buhrmester and Furman, 1990; Furman and Buhrmester, 1985; Soli et al. 2009; McHale et al., 2009). According to McHale et al. (2009), these minimized effects may be because siblings are more similar in some families but more different in others. Two other studies found weak or no sibling effects on timing of first premarital birth and on sexual behavior of younger female adolescents (Powers 1997; Miller and Bingham 1989).

2.6. – Individual factors affecting sibling relationships

Other important factors to consider when assessing the quality of sibling relationships are the individual's personal characteristics including personality, temperament, psychopathology, aptitude, and motivation as well as their cognitive and social development (Abramovitch, Pepler, and Corter, 1982; Gaines et al. 1999; Sulloway, 1996; Ernst and Angst, 1983; Sutton-Smith and Rosenberg, 1970; Stoneman and Brody 1993; Furman and Lanthier 1996; Stocker, Dunn, and Plomin, 1989; Dunn and Plomin, 1990; Whiteman and Christiansen 2008; Whiteman et al., 2010).

2.7. – Family and parental factors affecting sibling relationships

Although consensus on how much parent-child relationships influence sibling relationships has yet to be reached, some generalizations stand out from existing studies. Positive parent-child relationships are correlated with positive and prosocial sibling relationships (Amato and Fowler 2002; Brody 1998; Kelly, O’Flaherty, Connor et al. 2011; Maccoby and Martin 1983; Stocker and McHale 1992a; Stocker and McHale 1992b; Volling and Belsy 1992). In the same vein, parent-child relationships characterized by negativity, punishment, and excessive control are associated with conflict and aggression in sibling relationships (Dunn 2002; Brody, Stoneman, and McCoy, 1992; Brody, Stoneman, and McCoy, 1994; McHale and Crouter, 1996). Children who grew up in disharmonious homes have been found to have fewer problems adjusting if they had a positive relationship with their siblings (Jenkins 1992; Jenkins and Smith 1990).

Additionally, individuals make note of parents’ differential treatment by comparing their relationship with parents to that of another sibling (Brody, Stoneman, and McCoy 1992; Feinberg, Neuderhiser, Simmens et al. 2000; Daniels, Dunn, Furstenberg, and Plomin, 1985; Price 2008). Evidently, the quality of sibling relationships can be compromised if children perceive that their parents treat each sibling differently and interpret this differential behavior as an indication of their parents’ favoritism or dislike (Borgerhoff Mulder 1998; Kowal and Kramer, 1997; Conger and Conger, 1994; McGuire, Dunn, and Plomin, 1995; Conger and Conger 1994; Shanahan, McHale, Crouter et al. 2008; Dunn, 2002).

It is important to note that several of the studies from which these general conclusions have been drawn are cross-sectional so causality cannot be proven.

Another set of studies reveal that mothers of childbearing adolescents were less supportive, affectionate, communicative as well as more critical in their parenting, all of which was associated with an increased likelihood of their other adolescent children engaging in risky sexual behaviors (East and Jacobson, 2003; Furstenberg, Levine, and Brooks-Gunn 1990) and of becoming pregnant or fathering a child (Miller, Benson, and Gailbraith, 2001). Despite these less favorable consequences, an adolescent's childbearing can also have protective effects and minimize the likelihood of another adolescent in the family becoming pregnant or becoming an adolescent father (East, Slonim, Horn et al. 2009; Furstenberg 1980). In their qualitative study investigating how an adolescent childbearing affects siblings' pregnancy risk among a Mexican America samples, East et al. (2009) found that some mothers used the adolescent parent as an example to be avoided and that mothers elevated their attentiveness as well as monitoring of other children. In addition, mothers and other family members may verbally and/or explicitly dissuade adolescents from early sexual debut and adolescent parenting (Browning, Leventhal, and Brooks-Gunn 2005; East et al. 2009). Adolescents themselves might be persuaded to delay their plans for parenthood, witnessing firsthand the challenges involved in adolescent parenting (East et al. 2009).

In their study of high school students' discussions about sex safe practices with their older siblings, Kowal and Blinn-Pike (2004) found that communication with siblings and parents occurred in tandem. This finding, according to the authors,

reinforced the supplemental role of siblings in positively affecting the adolescent's attitudes about sexuality. The study also highlighted the unique position of older siblings in facilitating parent-adolescent discussions about the sex-related opportunities and challenges that younger siblings may encounter (Kowal and Blinn-Pike 2004).

Social scientists, particularly economists, caution about the likely endogeneity of sibling behaviors. Studies have shown that the background characteristics, attitudes, and behaviors of parents can influence those of their children (Ary, Tildesley, Hops et al. 1993; Barnes 1990; Boyle et al. 2001; Fox, 1981; Levy 2000; Miller 2002; Vink, Willemsen, Engels et al. 2003; Weinstein and Thornton, 1989). Thus, sibling similarity may be a result of a number of factors beyond the siblings' behavior or presence (Averett et al. 2010; Kiesner and Kerr 2004; Oettinger 2000; Werner-Wilson 1998). Others argue that even though family circumstances can weaken associations between siblings' attitudes and behaviors, the degree of association is still worth considering (Dunn 2002; McHale, Bissell et al. 2009). Moreover, Ghanaian parents' knowledge, attitudes, and behaviors, especially regarding sex and sexuality, is likely to play a very important role in adolescents own adjustments as well as their relationships with their siblings. Ghanaian parents' educational attainment, socio-economic status, residence, access to media, religious background, among others, can provide the key to unlocking adolescents' likelihood of adopting protective behaviors or engaging in risky ones, net of siblings' characteristics.

2.8. – *Peer relationships and sibling relationships*

Both theoretical and empirical bodies of work have considered whether the quality of sibling relationships is correlated with and can potentially impact children's and adolescents' relationships with their peers (Azmitia and Hesser 1993; Dunn, 2002; Keller, 2000; Kim et al. 2007; Voorpostel and Van Der Lippe 2007). On one hand, social learning theory posits that attitudes and behaviors learned through interactions with a sibling would generalize to interactions with peers (Bandura, 1977). Although siblings and peers are both dyadic and intimate, they differ on several levels. Indeed, friendships can involve a level of trust and support that not all sibling relationships enjoy (Dunn, 2002). Moreover, friendships do not involve rivalry for parental love and attention or resentment about differential treatment by parents (Dunn, 2002).

Even though sibling relationships may become more symmetrical and egalitarian over time, during adolescence, sibling relationships tend to undergo more changes, experiencing less warmth and intimacy commonly attributed to new friendships formed outside of the family and spending less time with siblings (Brody et al. 1994; Buhrmester and Furman 1990; Conger and Reuter 1996; Dunn, Slomkowski and Beardsall 1994; Dunn, Slomkowski and Beardsall 1994; Dunn 2002; Jessor and Jessor 1977). Another study concluded that siblings could use relational aggression to limit the other's access to peer relationships, which could lead to feelings of loneliness or affiliation with peers prone to delinquent activities (Soli et al. 2009).

A study exploring communication patterns among siblings and their friends showed that siblings tended to be more open in their communication with friends than with one another, particularly regarding topics surrounding sex, romantic partners, and money (Myers 1998). Siblings were more likely to talk to one another about family-related matters, including parents and other siblings (Myers 1998). Such findings show how siblings make strategic choices about the content of their conversations with each other and the extent of self-disclosure (Corti 2009). Some research also demonstrates that sibling relationships are also dependent on context. Specifically, Soli et al. (2009) found that some sibling relationship behaviors were more relevant in some contexts (e.g. adjustment problems) than others (e.g. school bonding).

In Ghana, where a sizeable proportion of adolescents who attend school also attend boarding school, it is interesting to observe how sibling relationships are affected by these non-shared environments and the influence of friendship networks on them. In this dissertation study, I determine the proportions of adolescents who communicate about sexual and reproductive health with their siblings as well as with their friends as a way to approximate the impact on each source on adolescents. The results of these cross-tabulations are discussed in Chapter 4.

2.9. – Linking adolescent sexual and reproductive health and sibling relationships in Africa

As has been shown in this chapter, the onset and practice of sexual activity is explained by several related contexts, including social, cultural and economic factors, peer relationships, as well as interactions between family subsystems (Ampofo, 2001;

Velez-Pastrana et al., 2005; Moore, Peterson, and Furstenberg, 1986; Bowen 1978). Studies examining both the contextual influences on adolescent sexual and reproductive health and the role of siblings in adolescent development in the African context are sparse (Diop-Sidibé, 2005). The few existing studies are described here:

In Kenya, a study by Kiragu (1996) found that males ages 15-19 years felt most comfortable discussing sexual matters with a brother and females of the same age felt most comfortable discussing these matters with a sister. A similar study of adolescents in Bamenda, Cameroon revealed that adolescents preferred talking with friends and older siblings about their first sexual experience (Rwenge 2000). Research conducted in Eastern and Southern Africa on adolescents' sources of communication about HIV/AIDS revealed that adolescents generally felt that they could not discuss sexual matters with their parents due to cultural and social norms, and turned to siblings instead (Nduati and Kiai, 1997). Another study on the influences of family and social ties on Nigerian female secondary school students found that of those whose sisters were smokers, 38% were smokers themselves, compared to 8% whose sisters were non-smokers, and these differences between these two groups were significant (Ele and Ibeh, 2001). The authors concluded that sisters who smoked had far more significant influence on the smoking habits of the young females than brothers who smoked, attributing this influence to the role model position of sisters (Ele and Ibeh, 2001).

A nationally representative survey of over 5,000 12-24 year-old Ghanaians found that roughly 10% of males and 20% females had a sibling who had been involved in a pregnancy before marriage (Karim et al. 2003). In the same study, those

who had a sister with a premarital birth were more likely than their counterparts to be sexually active, to have been pregnant, and among males, to have had a higher number of sexual partners (Karim et al. 2003). Using recent Demographic and Health Surveys (DHS) data from South Africa, Munthre's (2009) analyzed the risk of a younger sister's sexual debut and childbearing based on the presence of an older sister in the household who has had a child during adolescence. The study found that educational attainment, socio-economic status, and early sexual debut were key risk factors of adolescent childbearing in South Africa. Munthre's analysis also showed that younger sisters are more likely to have children at an earlier age than their older sisters who already have children, regardless of socio-economic status (Munthre 2009). In Cote d'Ivoire, adolescents aged 15-24 years were found to have a lower probability of remaining sexually inexperienced among those who had at least one sibling with an premarital birth, compared to those who had no sibling with this history (Diop-Sidibé, 2005). The study also found a lower probability of remaining sexually abstinent if the adolescents' sibling or siblings were of the same gender and an even lower probability among those who had both a brother and sister with a history of premarital birth (Diop-Sidibé, 2005). Additionally, adolescent males who had one or more brothers only, or had at least one brother and at least sister with this history exhibited higher hazard ratios of being sexually experienced by ages 17 and 24. These characteristics were not found among adolescent females (Diop-Sidibé, 2005).

Given this dissertation study's focus on Ghanaian adolescents, the next section presents a brief outline of the country's youth's demographic and behavioral trends as well as an synopsis of the youth-focused policies.

2.10. – Ghana: public and adolescent health profile

Ghana is a multi-ethnic country located on the western coast of Africa and gained independence from British rule in 1957. Latest population-based surveys estimate its population to be about 22 million (GLSS 2008; 2000 Census of Population and Housing). Between 1960 and the early 2000s, the proportion the population living in urban areas – defined as settlements with 5,000 people or more – increased from 23% to 44%. The incidence of poverty is higher in rural areas than urban areas, with approximately 85% of people living in rural areas being classified as poor (GLSS 2000). Ghana’ three largest religious groups are Christians, Muslims, and indigenous religious groups that comprise approximately 70%, 20%, and 10%, respectively (GLSS 2000).

Articulated in its most current 1992 Constitution, the government of Ghana aims to provide free and universal basic education as well as functional literacy programs to its citizens. However, out of Ghana’s ten administrative regions, the three northern regions have the lowest school participation rates, particularly among females. Latest national data from the 2008 Demographic and Health Survey (GHDS) indicate that a third of all households in Ghana are headed by females, with a higher proportion in urban areas. The mean household size in rural areas is 4.0 and 3.4 in urban areas.

2.10.a. Youth and adolescents. Almost a third of the total Ghanaian population is between 10 and 24 years of age, a proportion that has remained fairly constant since the since the 1970s (GLSS 2008). Half of 12-19 year-olds reside in rural areas (Awusabo-Asare 2006). Data from 1998-1999 indicate that about 49% of males aged 15-19 were attending school, compared to 38% of females. In the same age group, 70% of males and 64% of females had at least seven years of education (Awusabo-Asare et al. 2004). Results from the 2004 National Survey of Adolescents (NSA) show some improvement in that 70% of 12-19 year-old females and 80% of males in the same age group reported being currently in school and similar proportions expected to attain a secondary or higher level of education (Awusabo-Asare et al. 2006).

Even with Ghana's multi-ethnic composition, there are similarities in the socialization processes for adolescents as well as traditional roles, status, and responsibilities according to them (Awusabo- Asare et al. 2004). In all ethnic groups, adolescence is regarded as the period after childhood within which individuals experience noticeable changes and attain physical, sexual, and social maturity (Mensch 1972; Awusabo- Asare et al. 2004). Several ethnic groups traditionally celebrated this period with puberty initiation ceremonies, but cultural changes have resulted in a decline of these practices (Awusabo- Asare et al. 2004). The traditional system also adhered to a double standard that promoted virginity before marriage for young females, but not for young males (Ampofo 2001; Awusabo- Asare et al. 2004). This double standard stems from the fact that virginity was regarded as an honor to the young woman's family and earned respect from the male's family (Nukunya 1969; Ampofo 2001). There remains implicit approval of premarital sexual partnerships for

young males, but not for females, on the one hand, and first sex and childbearing being expected to occur within marriage for females but not for males, on the other hand (Awusabo- Asare et al. 2004; Nukunya 1969; Fortes 1950). Nevertheless, many traditional arrangements and expectations have changed and lessened over time, especially due to formal education, modernization, urbanization and migration (Awusabo- Asare et al. 2004). While the responsibility was primarily that of the family, extended family, and the community, adolescents can now count the school system, religious bodies, the media, and state organs as additional agents of socialization (Mensch et al. 1999; Awusabo- Asare et al. 2004). In present day Ghana, socialization reflects a combination of traditional, religious, legal, and modern value systems (Awusabo- Asare et al. 2004).

2.10.b. Policy environment. Since the late 1960s, Ghana has enjoyed an increased level of political commitment to population issues. The country's policy environment provides context for the laws, documents, governmental, and non-governmental bodies that have implications for the sexual and reproductive health of youth. Ghana was the first country in Africa to draft a population policy in 1969 (Oppong 1971). Following the 1994 International Conference on Population and Development (ICPD) held in Cairo, Egypt, the policy document was revised that year. These revisions led to more refined governmental documents aimed at effectively responding to the challenges faced by youth, ages 10-24 years, as well as their needs. These documents include the 1999 National Youth Policy (NYP) of Ghana, the 2000 Adolescent Reproductive Health (ARH) Policy of Ghana, and the 2001 HIV/AIDS

and STI Policy of Ghana. On the whole, these policies recognized the major challenges faced by Ghanaian youth including education, health, early marriage, substance abuse, and other risky or harmful circumstances and sought to provide avenues to empower youth to overcome these challenges (Awusabo-Asare et al. 2004). The policies also aim to promote an enabling environment and policy framework within which youth can have access to information and services as well as exercise their reproductive rights (Awusabo-Asare et al. 2004; National Population Council 2000; Anie-Akwetey 2002). Finally, these policies have mutual goals including: (a) motivating youth to increase the national average of age of sexual initiation to 15 years; (b) reducing the proportion of females who marry before age 18 and those who give birth before age 20 to 50% in 2010 and 80% by 2020; (c) reducing the vulnerability of young people to HIV/AIDS and STIs; (d) increase the proportion of females in secondary and higher education; (e) sensitizing stakeholders on aspects of family life education, HIV/AIDS education, and adolescent reproductive health issues; (f) promoting the participation of youth in policy making and implementation; (g) encouraging the establishment of structures that support peer and youth groups in communities to contribute to local and national sexual and reproductive health programs; and (h) finally, ensuring expanded access of youth to age-appropriate services and facilities (Awusabo-Asare et al. 2004; National Population Council 2000; Anie-Akwetey 2002).

The coordination, monitoring, and evaluation of these policies' goals rest on a number of government-appointed bodies such as the National Population Council, National AIDS Commission, Ghana Health Service, Ministry of Youth and Sports, as

well as non-governmental ones like the Planned Parenthood Association of Ghana and the Ghana Social Marketing Foundation. Ghana's youth-centered policies have facilitated the undertaking of research on the status of adolescent sexual and reproductive health. The general trends of these research topics are discussed below.

2.10.c. Adolescent sexual and reproductive health – research and studies

Research on Ghanaian youth span numerous decades and has generally focused on education, sexual activity and first intercourse, sexual partnerships, marriage, childbearing, contraceptive use, abortion, HIV/AIDS and STIs (Awusabo- Asare et al. 2004). Data derived primarily from national studies such as the 1993, 1998, 2003, and 2008 Demographic and Health Surveys (GDHS), the 2004 National Survey of Adolescents (NSA), and the 1998 Ghana Youth Reproductive Health Survey (GYRHS) provide an indication of these trends, discussed here:

- ***First sexual intercourse.*** The proportion of Ghanaian youth who have ever had sexual intercourse had continued to decline since the 1990s. In 2008, the median age at first sexual intercourse for females ages 25-49 was 18.4 years versus 20.0 years for males (GDHS 2008). This represents a steady increase in median age at first sex since 1993 when it was 16.9 for females and 18.4 for males. Data from the 2008 DHS indicate that by age 18, 44% of females and 26% of males have had sexual intercourse, a decline from 59% and 33% in the 1993 DHS, respectively. Even though approximately 90% of females and males are sexually active by age 25, studies conducted at both the national and local levels confirm that females initiate sex earlier than males (Awusabo-

Asare 2004; GDHS 1993, 2008). For females, variations in age at first sex exist by level of education, residence, and socio-economic status. Results from DHS reveal that more highly educated youth begin sexual activity at a later age than those who are less educated and that females from urban areas initiate sexual intercourse at slightly later ages than their rural counterparts (GDHS 1993, 2008). By socio-economic status, females in the lowest quintile initiate sexual intercourse at least a year earlier than those in the highest wealth quintile (GDHS 2008). Recent data show no real difference in the age of first sexual intercourse among males from urban and rural areas (20.3 and 19.9 years, respectively), among those with the primary education and no education (19.7 and 20.5 years, respectively), or among those in the lowest and highest quintile (20.4 years and 20.3 years) (GDHS 2008).

- ***Contraceptive use and sexual activity.*** Data on contraceptive use from the 2004 NSA indicate that approximately 30% of 15-19 year old females and 15% of 15-19 year old males reported ever having sex and 2 in 3 adolescents did not use any contraceptive methods at first sex (Awusabo-Asare 2006). These data correspond with the 2008 GDHS where 63% of females and 78% of males aged 15-19 indicated that they had never had sex.
- ***Sexual partnerships.*** Conducted in 1998 among adolescents aged 12-24 years, the Ghana Youth Reproductive Health Survey (GYRHS) showed that 68% of males and 79% of females reported having a current sexual partner. The proportion of those who had two or more sexual partners 90 days prior to the survey was substantially smaller, 10 % and 3%, respectively (Tweedie and

Witte 2000). Comparative data from the 1998 GDHS show that 17% of males aged 15-19 years reported having had two or more sexual partners in the twelve months preceding the survey, compared to 19% in the 2008 GDHS. Other local studies also point to a moderate to high level of multiple partnerships among males. Data on multiple partnerships among females is scarce although a large-scale study conducted in 2003 suggests that Ghanaian females aged of 15-24 years also engage in multiple and current partnerships (Karim et al. 2003).

- **Marriage.** Once a nearly universal occurrence among females, marriage patterns in Ghana have also changed over time, with an overall trend towards later marriage. The mean age at first marriage for females aged 25-49 years has remained relatively similar in the past decade, at 19.8 years in 2003 and 19.4 years in 2008 (GDHS 2003, 2008). Results from the 2008 GDHS show that by age 25, 80% of females age 25-49 were married and that Ghanaian men generally marry later in life, with less than half of males (44%) being married by age 25. The larger proportions of married women compared to those of men crosses all age groups (GDHS 2008).
- **Condom use.** Ghanaian adolescents are highly aware of the male condom as a contraceptive. Although the use of condoms during sexual intercourse is still relatively low, the condom and the pill are the most commonly used methods (Karim et al. 2003; Awusabo-Asare 2004; Tweedie and Witte; Adjei et al. 2000). Among 15-24 year olds who had ever had sexual intercourse, a quarter of females and 32% of males reported that they had used a condom at first sex

(GDHS 2008). Results from the 2008 GDHS also show that condom use was also more prevalent among never married youth than among their counterparts, although condom use was substantially higher among those who knew where to obtain a condom (GDHS 2008). Furthermore, the likelihood of condom use at first sex was higher among youth aged 15-24 years who resided in urban areas, those with a secondary or higher educational attainment, and those in the highest wealth quintiles when compared to their respective counterparts (GDHS 2008).

- ***Adolescent pregnancy and childbearing.*** The age-specific fertility rate among 15-19 year olds has declined from 124 births per 1,000 females in 1998 to 110 births per 1,000 in 2008 (GDHS 1998, 2008). This decline is partly explained by the general fertility decline in Ghana and steady increase in the median age at first birth (20.0 in 1988 to 21.8 in 2008 among 25-29 year old females) (GDHS 2008, 2003, 1999). Even so, adolescent fertility continues to account for between 10-12% of the total fertility in Ghana (GDHS 1999, 2003, 2008). Results from another national survey conducted ten years prior reveal that 22% of females aged 12–24 years who had ever had sex had also experienced at least one pregnancy, and 40% of males who ever had sex also said they had made someone pregnant (1998 GYRHS). The 2004 NSA survey revealed that of 10% of 15-19 year old females who had ever given birth, 42% considered their last birth unintended and a third would have preferred to give birth as a later time (Awusabo-Asare et al. 2006). In contrast, about 1% of males aged 15-19 years reported having fathered a child (Awusabo-Asare et al. 2006).

Levels of adolescent pregnancy and childbearing differ according to age group, educational status, and residence: the proportion of 15-19 year old females from rural areas who have ever given birth is double that of females in the same age group from urban areas (1998 GDHS). Moreover, 16% of 15-19 females who completed fewer than seven years of education had ever given birth compared to 9% of those who had completed seven or more years (GDHS 1998). Results from national and local studies reveal a generally high level of abortion prevalence in Ghana: according to the 1998 GYRHS, 16% of females and 11% of males aged 12-24 years who were sexually active also reported being involved in terminating a pregnancy, the vast majority being unmarried adolescents (Tweedie and Witte 2000). Of the females surveyed in the GYRHS, about a third knew of at least one unmarried adolescent female friend who had an abortion and 3 in 5 considered abortion a common response to unintended pregnancy (Tweedie and Witte 2000). A population-based study conducted in 1997-1998 among women in southern Ghana who experienced a recent pregnancy revealed an abortion ratio of 19 abortions per 100 pregnancies for all women and that 60% of those who had had an abortion were younger than 30 years (Ahiadeke 2001). Agyei et al. also found that 47% of young unmarried women in the Greater Accra and Eastern Regions of Ghana who had ever been pregnant had terminated a pregnancy (Agyei et al. 2000).

- ***HIV/AIDS and other STIs.*** Ghana's first HIV/AIDS case was reported in March of 1986 (Anarfi 1997). In 2009, national estimates showed an HIV prevalence rate of 1.9%, characterized by the World Health Organization as a generalized epidemic because the prevalence is 1% or greater in the national population (Ghana AIDS Commission 2010). Repeated HIV sentinel surveys conducted in antenatal clinics reveal fluctuations over time in the prevalence rate: 3.6% in 2003, 2.7% in 2005, 3.2% in 2006, 2.2% in 2008, and 2.9% in 2009 (Ghana AIDS Commission 2010). In these sentinel sites, HIV prevalence differed according to age, geographical area, and residence. Prevalence ranged from 0.7% in parts of the Northern Region to 5.8% in parts of the Eastern Region. Of the forty sentinel sites, four had an HIV prevalence of 5.0% or above. Furthermore, the prevalence was higher in urban sites than in rural ones (Ghana AIDS Commission 2010). Of Ghana's ten administrative regions, only the Eastern Region has shown a rise in prevalence while others have shown a general decline (Ghana AIDS Commission 2010). By age group, the highest prevalence was among those 40-44 years of age (4.0%) while the lowest was among those 45-59 years (1.8%) (Ghana AIDS Commission 2010). In addition, the national HIV prevalence among those aged 15-24 was 2.1% in 2009, representing an increase from 1.8% in 2008, but similar to 2.3% in 2002 (Ghana AIDS Commission 2010; UNAIDS 2002). In Ghana, female sex workers have consistently exhibited a substantially higher HIV prevalence compared to the general population: 25.1 % in 2009, representing a decline from 34.0% in 2006 (Ghana AIDS Commission 2010).

Awareness of HIV/AIDS is almost ubiquitous with approximately 97% of 15-19 year-old males and females reporting that they have heard about HIV/AIDS (GDHS 2008; NSA 2004). Despite this high level of awareness, numerous studies have noted gaps in young people's knowledge about the virus and illness, including the specific ways through which HIV can be transmitted (Awusabo-Asare et al. 2004). While in the late 1990s, a large proportion of Ghanaian adolescents did not consider themselves to be at personal risk of HIV infection (GYRHS 1998), a survey conducted 2004 revealed that over 40% of 12-19 year olds were worried about getting HIV/AIDS and about a third are worried about getting (someone) pregnant (NSA 2004).

Ghanaian adolescents' knowledge of STIs other than HIV – including gonorrhea, syphilis, herpes, chlamydia, and genital warts – is weaker. This lack of knowledge, coupled with an immature reproductive system, heightens adolescents' risk of exposure to STIs (Nabila, Fayorsey, and Pappoe 1997; Tweedie and Witte 2000). To date, few data have been collected and published about STI prevalence in Ghana. Results from a 2002 sentinel estimated the prevalence of syphilis to be 0.6% among 15–24-year-olds and cited several barriers to obtaining accurate information about STIs (Ghana AIDS Commission 2003). Adolescents and adults alike are reluctant to report STI symptoms for fear of being labeled promiscuous (Nabila, Fayorsey, and Pappoe 1997). Others opt not to report any STIs symptoms especially when

resulting infections are not considered to be major issue (Awusabo-Asare et al. 2004).

- ***Sources of information.*** The media has repeatedly been cited as the main source for youth regarding HIV/AIDS information. Data from the 1998 GDHS show that the radio, workplace, and television were most frequently cited by 15-19 year olds. By contrast, friends and relatives were cited by 5% of males and 7% of females respectively (GDHS 2008).
- ***Gender and social norms.*** Studies conducted in Ghana reveal that girls and boys learn to distinguish their roles and appropriate behavior by observing those around them, especially their parents (Ampofo, 2001; Nukunya, 1992). Qualitative and quantitative studies also reveal that Ghanaian boys are encouraged, not only by peers, but also by family members to use adolescent years for sexual experimentation (Ampofo, 2001; Karim et al., 2003). Kumi-Kyereme et al.'s (2007b) study on the influence of social connectedness, communication, and monitoring on adolescent sexual activity in Ghana demonstrated the importance of parental involvement and monitoring in reducing the likelihood of adolescents engaging in risky behaviors. Ampofo (2001) maintains that more research is needed to better delineate the roles that family members play in influencing sexual and contraceptive behaviors among youth in Ghana.
- ***Challenges in enhancing adolescent sexual and reproductive health knowledge and services in Ghana.*** In their assessment of adolescent sexual and reproductive health trends in Ghana up to 2004, Awusabo-Asare et al.

(2006) asserted that one of the country's key challenges was to monitor behavior change over time alongside HIV/AIDS interventions, family life education, and media campaigns focusing on young people. They stressed that addressing adolescents' vulnerabilities to issues of early sexual initiation, unintended pregnancy and unsafe abortions requires an atmosphere that (1) promotes openness at the household and community levels; (2) provides opportunities for teaching in-school and out-of-school adolescents about effective ways of protecting themselves from these vulnerabilities; and (3) provides youth-friendly services, including counseling about sexual relationships. Adopting these strategies, they stated, will improve ways to reach youth with information and services early in their transition to adulthood (Awusabo-Asare et al. 2004).

2.11. – *Conceptual Framework*

The conceptual framework that guides this study (Figure 2.1) acknowledges the diverse sources of sexual and reproductive health information available to siblings in a given household and posits that these sources of information impact their individual sexual and reproductive health knowledge, attitudes, and behaviors. The conceptual framework underscores the synergistic relationship between siblings, one that is likely characterized by communication and interaction, the exchange of information, and the receiving or giving of advice and support. The flow of information and interaction between siblings may create opportunities for learning as

well as exposure to activities in which siblings engage. Communication and interaction may also lead to the reinforcement of knowledge, attitudes, and behaviors as well as modeling of new behaviors and/or admiration for the sibling. Therefore, the characteristics and nature of sibling relationships can engender observational and social learning and/or differentiation among siblings. The conceptual framework takes into account the possibility of younger siblings sharing sexual and reproductive health information with their older siblings. Lastly, the framework draws attention to a duality that is seldom represented in policies and programs focused on youth, adolescent sexual and reproductive health: that adolescents are likely to be siblings, to share information with each other, and to have an effect on each other's knowledge, attitudes, and behaviors.

2.12. – *Chapter summary*

The period of adolescence is characterized by important physical, psychosocial, and behavioral changes, a heightened sense of self-development and self-efficacy as well as a proclivity toward new experiences, including sexual initiation. The purpose of this chapter is to situate the role of siblings in adolescent development by linking four theoretical and empirical research areas: adolescent sexual and reproductive health in Africa, and Ghana in particular; (2) the role of culture, family, and friends; (3) theories of social learning and sibling differentiation; and (4) structural and affective dimensions of sibling relationships.

The sexual and reproductive health of adolescents becomes a priority for stakeholders (family members, school and community systems, and religious groups) whose collective aim is to encourage adolescents to adopt positive and healthy behaviors. The latter minimizes the likelihood of engaging risky behaviors such as unprotected sex, which can lead to early and unintended pregnancy and contracting STIs, including HIV. Ultimately, behavioral and social norms are transmitted to adolescents inter-generationally (e.g. from parents, other adult family members, teachers, health care professionals) and intra-generationally (e.g. friends and siblings).

This chapter draws attention to siblings as one of the stakeholders who also serve as agents of socialization, role models, and confidants, particularly during childhood and adolescence. Communication and interaction between siblings can affect knowledge, attitudes, and behaviors especially as they pertain to sexual and reproductive health. The quality of sibling relationships is influenced by affective characteristics (including the degree of warmth, nurturance, closeness, conflict and rivalry), structural characteristics (including birth order, age spacing, age, gender), as well as parental and family characteristics.

The chapter also reviewed the progression of the field of sibling research, dominated by social learning theory which purports that siblings are more likely to emulate the behaviors of those who are closest to them. More recently, sibling research has paid greater attention to differentiation theory, which submits that siblings can differentiate themselves in order to reduce rivalry and competition, but also to reduce similarity between each other by creating unique niches within the family.

In as much as the field of sibling research has evolved over time, the lines of inquiry have remained relatively stagnant with a focus on sexual and/or delinquent behaviors and have used mostly homogenous European and American-European samples to make claims about sibling relationships. Scholars continue to meet the call to diversity sibling research by conducting studies using immigrant and non-Western populations; studying young, middle, and late adulthood; emphasizing positive and non-sexual/delinquent behaviors, including as academic achievement; and using more complex statistical analyses.

Studies have linking sibling relationships and adolescent behaviors in the African context are not common. The few existing studies suggest that siblings play a noticeable role in shaping African adolescents' knowledge, attitudes, and behaviors. This dissertation study explores the role of siblings in adolescent's sexual and reproductive health knowledge, attitudes, and behaviors as well as the conditions under which adolescents look to their siblings as role models and comparative references as well as sources of information, advice, and support. Also, the present study contributes to the field by using a mixed-methods approach and a sample of 12-19 year old adolescents from Ghana, by examining instances of risky and protective behaviors, and finally, by considering both social learning and differentiation learning mechanisms between adolescents and their siblings.

2.13. – *Research questions and hypotheses*

The dissertation study is guided by the conceptual framework discussed in section 2.7 and illustrated in Figure 2.1. It explores five main research questions:

1. What/who are adolescents' most frequently cited sources of sexual and reproductive health information?
2. What is the timing and nature of sexual and reproductive health information that adolescents receive from these sources, and how different is it from the information provided by siblings?
3. Do adolescent-sibling communication and interactions vary according to gender, age, school status, and residence?
4. Do adolescents' narratives reveal evidence of social and/or observational learning specific to their communication and interactions with siblings?
5. What role do siblings play in the functioning of their family?

These research questions are informed by the following hypotheses:

- 1a) Given the proliferation of radio and television, coupled with far-reaching health and social marketing campaigns, the most frequently cited source of sexual and reproductive health information for all adolescents will most likely be the media. I did not anticipate any significant differences in levels of communication according to gender.
- 1b) Adolescents who are out of school, whose opportunity to be exposed to a sex education curriculum is limited, will be less likely to mention teachers or health

care providers as important sources of sexual and reproductive information compared to those in school.

1c) In Ghana, traditional and cultural values tend to be more pronounced in rural areas (Awusabo-Asare 2004; Ampofo 2001). Thus, adolescents from these areas will be more to likely cite non-formal channels of communication including parents, siblings, and friends.

2) The timing and nature of sexual and reproductive health information that adolescents receive from their siblings will likely be similar to that of other sources. However, siblings and friends will likely convey this information in more accessible and personal ways than would parents, teachers, health care providers, and the media.

3a) Adolescents' communication patterns with siblings will likely show variation according to socio-demographic characteristics. Given differences in their developmental stage, older adolescents will be more likely to consider engaging in sexual behavior, and thus be more likely to indicate communication with siblings as well as other sources.

3b) Likewise, out-of-school adolescents whose access to sex education curriculum is curtailed will more likely rely on their (older) siblings for information about sexuality than those who are still in school.

3c) Rural adolescents, who are more likely to espouse traditional values that favor strong relationships with family members, will also be more likely to indicate communication and interaction with their siblings.

3d) Communication and interaction among same-gender dyads will likely be more prevalent than among cross-gender dyads, in line with the general pattern from existing literature.

3e) In their dialogue and narratives, adolescents will most likely reference communication and interactions with older siblings, regarding sexual and reproductive health issues. Likewise, survey data will likely show that adolescents who have older siblings will be at greater odds of communicating with them about sex-related matters.

4) I expect that by virtue of their discussions about sibling communication and interaction, adolescents' dialogues and narratives will shed light on direct and indirect learning mechanisms, providing support for the theories of social learning and sibling differentiation.

5) Based on ethnographic and sociological research conducted in Africa, I also expect that adolescents' discussions of their role in family functioning will revolve around caretaking of younger siblings.

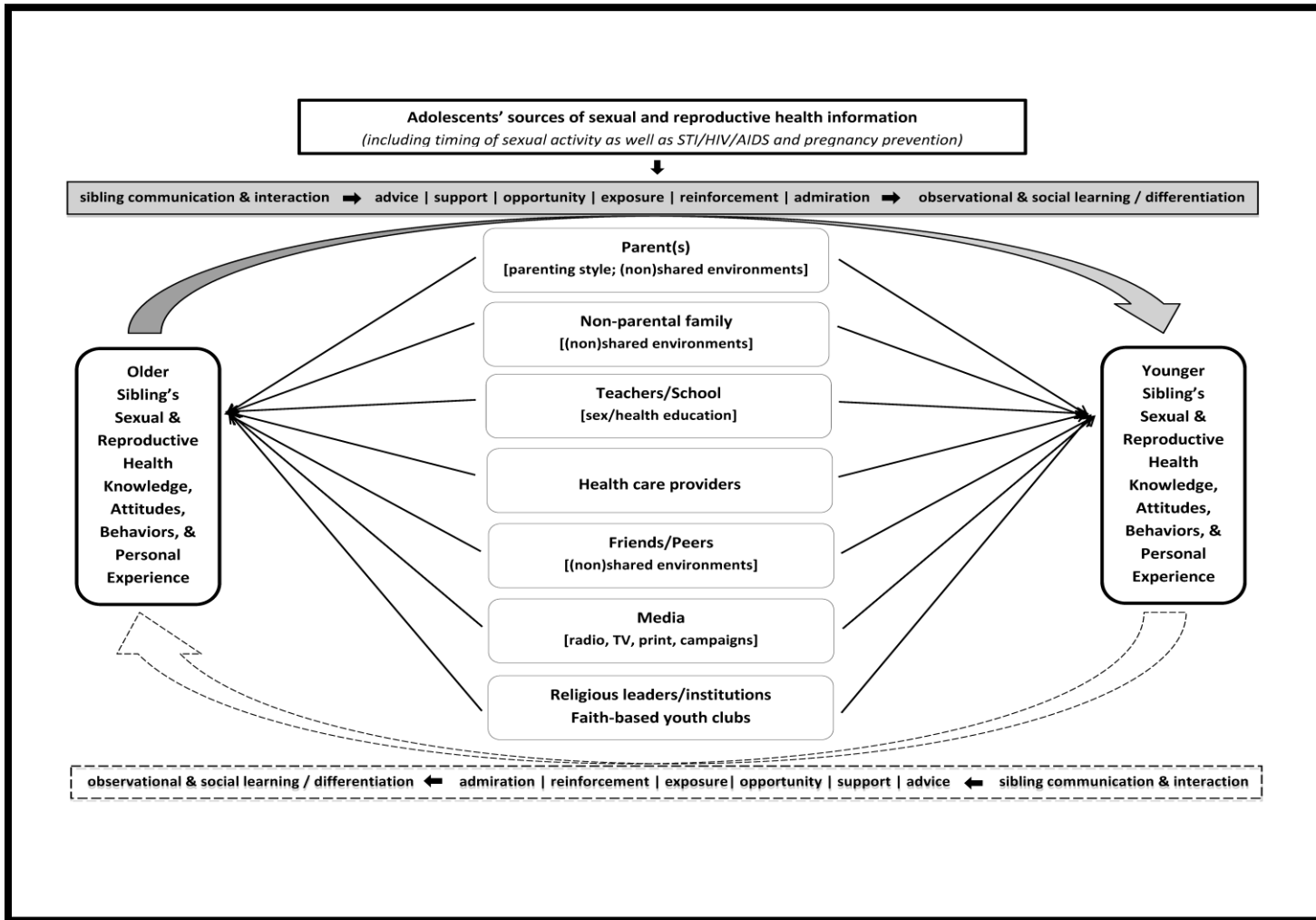


Figure 2.1 – Conceptual Framework of Links between Adolescent Health-Related Knowledge, Attitudes, Behaviors and Sibling Communication

CHAPTER 3

METHODS AND DATA

Data used in this dissertation come from a nationally representative survey as well as focus group discussions and in-depth interviews conducted among 12-19 year-old male and female adolescents in Ghana. Data were collected as part of the *Protecting the Next Generation: Understanding HIV Risk Among Youth* (PNG) Project, carried out by Guttmacher Institute and partner research institutions in Burkina Faso, Ghana, Malawi and Uganda. By collecting data using three different methodologies, the PNG project sought to contribute to the global quest for strategies to effectively combat the HIV/AIDS epidemic among young people and raise awareness of their sexual and reproductive health needs (Kumi-Kyereme, Awusabo-Asare and Biddlecom 2007a). The project also sought to communicate its findings to stakeholders at national and international levels as well as inform and improve existing youth-related policies and programs (Kumi-Kyereme et al. 2007a).

This chapter is organized as follows: I first present a summary of the paradigmatic assumptions of quantitative and qualitative methodologies as well as a rationale for a mixed methods approach. Second, I describe the data collection and methods of the PNG project. Third, I discuss qualitative data analysis, including its procedures and techniques. Because this dissertation is an analysis of data that were originally collected for a different purpose, I review the merits and limitations of

secondary data analysis, then detail my analytical strategy of the focus group discussions, in-depth interviews, and survey. Lastly, I present my conceptual framework, research questions, and hypotheses as well as socio-demographic data pertaining to the adolescent samples from the three data sources.

3.1. – *Quantitative and qualitative research: two parts of a whole?*

Although sometimes framed as a false dichotomy, ‘qualitative’ and ‘quantitative’ data analyses tend to have different strengths and objectives. Quantitative research is generally deductive in that conclusions based on measured variables are directly related to the theories and hypotheses being tested (Creswell 1994). Quantitative methodologies are based on positivistic perspectives that view the world and knowledge as objective and controllable (Thompson 1995). Representative samples collected in the form of quantitative data allow for the generalization of findings as well as reliability and validity checks.

While useful and valuable in all its variations, quantitative research tends to ineffectively capture the complexity of the participants’ perspectives as well as their lived experience, interactions, and perceptions (Creswell 1998). Qualitative research approaches are interpretivistic and aim to gain greater insights into the meaning, beliefs, and cultures that affect the attitudes, behaviors, and motivations of individuals (Berg 2009; Creswell 1994). Qualitative research is inductive in that its principles are derived from particular facts or instances and its methodologies are based on the assumption that knowledge is socially constructed and therefore not wholly

describable or controllable (Stage 1992). Collecting and analyzing qualitative data may yield patterns that can help the researcher to describe, understand, or discover the topic under study. Emergent patterns may also help the researcher to develop a theory or compare them to existing theories (Creswell 1994; Denzin 1989). Unlike quantitative analyses of representative samples, data derived from qualitative analyses are not generalizable to the larger population.

There are several qualitative approaches and the choice of which to use in research depends on a number of factors (Creswell 1998). Each of these approaches has its own merits, engenders different types of conversations, accentuates differences in what may be expressed in private versus public, or with peers versus an interviewer (Kitzinger 1994). Focus groups, for example, are not designed to tap into individual biographies or decision-making, and are typically conducted in an arranged setting (Krueger and Casey 2000). Conversely, interviews can provide detailed biographies, as described by individuals. Ethnography focuses both on groups and individuals in a natural setting and over an extended period of time (Boyle 1994; Creswell 1998). Phenomenology is a qualitative research approach through which an existential phenomenon (e.g. pain, joy, or empathy) can be examined (Ray 1994). By interviewing participants who have experienced such a phenomenon, meaning and knowledge are created and extended through their interpretations (Moustakas 1994).

A rationale for a mixed methods approach. Mixed methods research involves the collection and analysis of qualitative and quantitative data (Creswell and Plano

Clark 2007). Although qualitative and quantitative methods espouse different paradigms, assumptions, worldviews, and methodologies, some social scientists have argued that depending on the research question and topic being studied, these approaches can be used jointly and pragmatically, as two parts of a whole, to illuminate the complexities of human existence (Bryman 2001; Creswell and Plano Clark 2007; Morse 2003; Silverman 2001;). Quantitative data allow for inferences and generalizations, while qualitative data offers in-depth knowledge of participants' perspectives. Combining quantitative and qualitative data can take three forms: *merging* by bringing together, *connecting* by building on the other, or *embedding* such that one type of data provides supports or complements the other (Creswell and Plano Clark 2007). Also referred to as data triangulation, the combination affords the researcher in search of correlation and relationships uniquely rich data from which results can be inferred (Denzin 1989).

It is important to note that other researchers consider these methodologies incompatible for a number of reasons, including their different epistemologies (Denzin and Lincoln 2000; Lincoln and Guba 1985). Additionally, Hammersley (2010) denies the existence of the two methodological types and cautioned against making steadfast distinctions between them. Leininger (1992) asserts that triangulation *across* methods violates the integrity of both methodologies and suggests instead that researcher combine methods *within* a paradigm.

Given the objectives of this dissertation study, I align myself with other researchers who find merit in combining methodologies. I conduct a secondary

analysis of three related data sources, exploring the prevalence of communication with siblings among adolescents as well as the nature of their communication and interactions. I place the latter in the broader context of adolescents' multiple sources of sexual and reproductive health information as well as their health-seeking strategies.

3.2. – *Focus group discussions (FGDs)*

Initially devised as a market research technique in the 1920s and used in the 1950s to investigate people's reactions to war-related propaganda (Basch 1987; Bogardus 1926; Merton, Fiske and Kendall 1956 in Kitzinger 1994), focus groups discussions (FGDs) are designed to explore a people's beliefs, experiences, and attitudes regarding a given topic or phenomenon (Asbury 1995; Krueger and Casey 2000). Focus group participants are typically selected using purposive sampling and share characteristics, such as age range, social class background, ethnicity, and gender (Breen 2006; Krueger and Casey 2000). While focus groups are characteristically conducted face-to-face, recent methodological and technological advances have made it possible to conduct focus groups online (Gaiser 1997; Kenny 2005; O'Connor and Madge 2003).

Focus groups can serve several purposes: as a research tool in the preliminary or exploratory stages of a larger study (Krueger and Casey 2000); to evaluate or develop activities related to an ongoing project; or to evaluate the impact of a study

and determine future research directions (Race, Hotch, and Parker 1994; Parker and Tritter 2006). Morgan (1997) explains that focus groups can also be used as a stand-alone method or as a complement to other methods for triangulation and validity. The growing literature on focus groups offers a variety of defining characteristics of focus group discussions, yet a persistent characteristic of focus groups is the interaction or dynamic between group members that generates rich discussions and research data (Burrows and Kendall. 1997; Catterall and Maclaran 1997; Kitzinger 1994; Morgan 1997; Thomas, MacMillan, McColl et al. 1995).

While there is no set number of participants that a focus group should include, it is recommended that each ranges between six and eight participants (Krueger 1994; Krueger and Casey 2000; Morgan 1997). The goal is to have a group large enough to gain a variety of perspectives, but small enough to maintain order and avoid fragmentation (Rabiee 2004). Krueger (1994) and Morgan (1997) propose conducting three to six different focus groups, since multiple groups can help determine the extent to which saturation has been reached. Saturation is when content or information recurs in groups or interviews such that a researcher can anticipate it and whereby collecting more data would not add any further interpretive value (Flick 1998; Morse 1995; Strauss and Corbin 1998). Moreover, through multiple groups, a researcher can assess themes that emerged across groups, as well as themes that were particular to groups. This exercise also enables researchers to assess the extent to which theoretical saturation – when researchers can assume that an emergent theory is developed well enough to fit any future data collected – has occurred (Sandelowski 2008). Onwuegbuzie, Dickinson, Leech et al. (2009a) concur with having multiple focus

groups to review themes and recommend an *emergent-systematic* design, “wherein the term *emergent* refers to the focus groups that are used for exploratory purposes and *systematic* refers to the focus groups that are used for verification purposes” (p.6., emphasis in original). Generalizability is not the goal of focus groups discussions, considering the bias introduced by selecting a purposive sample (Vaughn, Schumm, and Sinagub 1996). Vaughn et al. (1996) conclude that even though it may not be the objective, generalizability may be attained by “conducting multiple focus groups that converge on the same findings” (p. 60).

Group discussions allow researchers to gain insight into whether, how, and/or why a topic might be important to participants and to examine social and group processes within a given cultural context (Kitzinger 1994). While the group process may elicit consensus among the participants and group norms, differences between individual participants are equally important to the group interaction and process (Kitzinger 1994). As Kitzinger states: “participants do not just agree with each other, they also misunderstand one another, question one another, and try to persuade each other of the justice of their own point of view and sometimes vehemently disagree” (Kitzinger 1994: 113). The research data that emerge from group discussions can be invaluable for generating theory by examining the categories which participants use to describe their experiences (Glaser and Strauss 1967; Onwuegbuzie et al. 2009a).

Some researchers insist that not knowing each other encourages greater spontaneity in the views expressed and range of responses elicited as well as greater honesty among participants (Rabiee 2004; Thomas et al. 1995). Participants’

unfamiliarity with each other avoids situations in which those with pre-existing acquaintances dominate the discussion (Thomas et al. 1995). Conversely, Rabiee and Thompson (2000) assert that when investigating very sensitive and personal topics, participants who already know each other also trust each other to a greater extent, encouraging interaction and expression of views. According to Kitziinger (1994), because they already know each other, participants can relate to one another's comments and may be open to challenging each other. However, participants may not engage fully in the discussion, thus undermining the power of group interaction (Krueger and Casey 2000). Another possible disadvantage is that participants who are familiar with each other may be less forthcoming during discussions of sensitive topics. For their focus group discussions, the PNG Project researchers opted to select adolescents who did not know one another in order to increase confidentiality and create ease in discussing issues related to their sexual and reproductive health.

Whether participants know each other or not, one key advantage of using focus groups as a qualitative research method is that they are generally conducted in socially oriented environments and are an economical and efficient way of obtaining information from several participants simultaneously (Krueger and Casey 2000). Moreover, focus groups can provide a sense of belonging that can increase participants' sense of cohesiveness (Peters 1993) and lead to discussions as a unit, rather than as somewhat disconnected individuals (Kitziinger 1994).

Focus groups are conducted by a moderator or group facilitator who provides clear guidelines, with the help of an interview guide (Krueger 1994; Krueger and

Casey 2000). A well-designed interview guide allows the moderator to ask a series of open ended questions, guide the flow of the discussion, and give participants an equal opportunity to voice their opinions (Krueger and Casey 2000). The moderator is also responsible for ensuring comfort and respect among participants, all the while facilitating interaction and synergy. The moderator must be prepared to promote debate and challenge participants, particularly when it serves to uncover their differences and to highlight the diversity of meaning attached to the subject matter (Krueger 1994; Krueger and Casey 2000). In doing all this, Krueger (1994) explains, moderators should resist seeming overly approving so as not to appear to favor some participants over others. Similarly, moderators are strongly encouraged not to influence participants' opinions by offering their own (Krueger 1994). Some focus groups will involve more than one moderator, where one leads the conversation while the other takes notes (Krueger and Casey 2000). Finally, a well-designed focus group will normally last between one and two hours (Krueger and Casey 2000; Morgan 1997).

3.3. – *In-depth interviews (IDIs)*

In-depth interviewing is an established qualitative research method that uses open-ended questions to investigate a set of topics with one individual at a time and permits the individual being interviewed to elaborate on his/her sentiments and opinions (Webber and Byrd 2010). The interactions between the interviewer and individual participant are captured in what is known as an in-depth interview. A

participant may also be referred to as a respondent, interviewee, narrator, or an informant (Webber and Byrd 2010).

In-depth interviews (IDIs) are usually aimed at understanding individuals' subjective experiences with and interpretations of a given topic/phenomenon and may be more or less structured. When less structured, the interview is guided by one or more research questions that explore the topic under study and allow for these experiences and interpretations to emerge organically, rather than through hypotheses and ideas pre-determined by the interviewer (Berg 2009; Denzin and Lincoln 2000; Schutt 2009). IDIs offer a way to explore the lives of persons of interest and the contexts in which they make decisions and make sense of their lives (Denzin and Lincoln 2000). IDIs also allow researchers to investigate sensitive topics in complex ways that are not easily achievable when using structured survey questions (Webber and Byrd 2010). Participants' accounts generate rich qualitative data that can be examined and interpreted to elucidate the meanings associated with a topic or phenomenon (Webber and Byrd 2010).

In-depth interviews are commonly conducted face-to-face, allowing the interviewer to record emotive/non-verbal expressions and responses that may inform the interview context and prompt the interviewer to probe further (Webber and Byrd 2010). Rather than constrain the interview with close-ended questions as is normally done in a survey questionnaire, the in-depth interview is based on an interview guide that includes the primary research questions with accompanying open-ended questions and follow-up questions (Webber and Byrd 2010; Blair-Loy 2003; Gerson 2009). The latter give researchers the flexibility to adapt the questions to the flow of the interview

and to explore answers beyond what may have originally been asked (Webber and Byrd 2010). Some interview questions may be highly structured in sequential or chronological order even though they are open-ended (Blair-Loy 2003; Gerson 2009). All in all, the interview guide exists to address topics of interest and ask questions that can facilitate the systematic collection of data, comparability of data across interviews, and analysis in conjunction with statistical methods to test a set of hypotheses. (Webber and Byrd 2010).

As with all methodologies, in-depth interviewing has its limitations. Researchers depend on the responses of participants and rely on assumptions of what they observe, both of which may be inaccurate. Researchers are not privy to observing participants in the actions they take (Taylor and Bogdan 1998). Similarly, participants may not be willing to discuss the topic(s) in as much depth as is expected by the researcher. Related to the latter is that, uninhibited interaction between the interviewer and participant is not always guaranteed and personal interaction may be difficult to sustain during the interview (Taylor and Bogdan 1998). Finally, due to smaller and less representative samples, the generalizability of findings from studies using in-depth interviews is not possible (Webber and Byrd 2010; Vaughn et.1996).

3.4. – *Surveys*

Surveys are generally designed to include a diverse set of participants such that the samples are representative of the general population. As such, data derived from surveys allow for statistical analyses that can help to decipher the characteristics of

large populations and makes inferences that are generalizable. Survey questions are standardized and use uniform definitions, both of which help to increase precision in measurement and compare data. With survey data, multiple variables and relationships can be analyzed using a variety of procedures ranging from simple frequencies and cross-tabulations to event history analysis and social network analysis. Surveys can be self-administered or facilitated by research staff, in oral or written form and in person, via mail, telephone, or email. Reliability is highly attainable when using survey data since subjectivity among participants is thought to be greatly reduced by the standardization of questions. Some disadvantages of surveys are that the format remains unchanged during the data collection process. Also, standardized questions could be too general and not particularly applicable to the respondents. Lastly, surveys questions may lack the ability to capture context.

3.5. – *Data collection & methods*

For this dissertation study, I use focus group, in-depth interview, and survey data collected in Ghana as part of the PNG Project. Data were collected by researchers at the University of Cape Coast as well as the Institute of Statistical, Social, and Economic Research (ISSER) at the University of Ghana. I detail the Project's data collection and methods in the sections that follow.

3.5. a. *PNG focus group discussions.* In January and February 2003, 16 FGDs were conducted with 172 Ghanaian adolescents between the ages of 14 and 19 years. The FGDs were exploratory in nature and designed to inform the scope and

development of the IDI interview guide as well as the survey instrument (Guttmacher, FGD Methodology Summary). Discussions were held in designated locations and data were collected among adolescents whose confidentiality was maintained by ensuring that participants were not familiar with each other and. The FGDs covered six main topics:

- (1) activities in which young people engage, including sexual activity;
- (2) awareness of sexually transmitted infections (STIs);
- (3) whether and where young people sought sexual and reproductive health (SRH) services;
- (4) adolescents' perceptions and management of risk behaviors;
- (5) access to SRH information, including formal and informal sources, preferred and trusted sources, as well as medium of delivery; and
- (6) persons with whom young people communicated about SRH-related problems.

The adolescents recruited to participate in the FGDs hailed from various parts of the country. Apart from age, adolescents were selected based on three criteria: gender (male/female), schooling status (in-school/out-of-school) and residence (urban/rural). The focus groups were delineated according to gender and age (14-16 years and 17-19 years), each with 9 to 12 participants. Lasting an average of two hours, each FGD was

taped, transcribed, and translated from local languages (Dagaare, Dagbani, Ga, Mampruli, and Twi) into English (Guttmacher, FGD Methodology Summary).

Depending on urban or rural locations as well as schooling status, the research team used either a community-based approach or a facilities-based approach to recruit adolescents. The research team gained access to the field through letters and meetings with local administrators such as the Inspector General of the Police, Metropolitan and District Chief Executives, principals of junior and secondary schools as well as community leaders (Guttmacher, FGD Methodology Summary).

Urban youth were recruited from Accra and Kumasi, the two largest cities in Ghana. Accra was chosen because, as the national capital, it attracts people from all walks of life, including youth who are looking for employment. Kumasi, a major cultural and educational center, was chosen primarily because the students attending its second cycle institutions come from various parts of the country (Guttmacher, FGD Methodology Summary). Older adolescents (17-19 year olds) were selected from boarding, vocational, and technical schools in Kumasi and grouped according to same-gender or mixed-gender schools. Confidentiality was maintained by ensuring that only one student was selected from each school. The younger adolescents (14-16 years) in Kumasi were selected from 20 junior secondary schools, where one student was selected from each school. For both age groups, consent was obtained from students as well as school principals who served as proxies for parents/guardians. FGDs were held in a neutral location and in an environment appropriate for the sensitive nature of the discussions (Guttmacher, FGD Methodology Summary).

In Accra, out-of-school adolescents were recruited from two randomly selected communities. Within each community, adolescents were screened from among street vendors, eateries, lorry stations, and playgrounds. The research team first obtained consent from the adolescents themselves, followed by their parents or guardians. After the screening process, selected adolescents were driven to a location conducive to discussions (Guttmacher, FGD Methodology Summary).

Rural youth were selected from West Mamprusi and Tolon/Kumbungu, two districts in the Northern Region of Ghana. Aside from being selected to ensure that adolescents across the country would be reached, Tolon/Kumbungu district was selected because at the time the project was underway, it had the highest number of school-drop outs in both the Northern Region and the country as a whole (Guttmacher, FGD Methodology Summary). One group of males and one females, both out-of-school, were selected from each of Tolon/Kumbungu's four districts. Screening and recruitment were held at a market square and on playgrounds. Consent was obtained from adolescents who were recruited as well as from their parents or guardians. FGDs were conducted in a district assembly hall (Guttmacher, FGD Methodology Summary).

Older adolescents from rural areas who were in school were recruited from the only two existing senior secondary schools in the catchment area. This made it more difficult to ensure the selection of students who did not know each other (Guttmacher, FGD Methodology Summary). Younger adolescents from rural areas who were in-school were selected from 20 out of 25 junior secondary schools in the area. Following

the screening process, one male and one female student were selected from each school. Consent was obtained from adolescents as well as their school principals, who served as proxies for parents or guardians. Selected adolescents were driven to Walewale (West Mampusi's district capital) where FGDs were conducted (Guttmacher, FGD Methodology Summary).

In Accra and Kumasi, 195 prospective adolescents were screened and 85 participated in the FGDs. In the two rural districts, 238 prospective adolescents were screened, of whom 87 participated (Guttmacher, FGD Methodology Summary). Documentation from the Guttmacher Institute shared with secondary researchers does not provide further information regarding the final selection criteria.

3.5.b. PNG in-depth interviews. A total of 102 IDIs were conducted among adolescents who were also screened and selected according to gender, age, schooling status, and residence. Different from the focus groups, the IDIs included 12-19 year olds since early adolescents (12-14 years) are often overlooked in adolescent sexual and reproductive health research (Awusabo-Asare, 2006). Kumi-Kyereme et al. (2007) explain that the IDIs sought to:

- (1) examine adolescents' sources of information about puberty, preventing HIV/AIDS and pregnancy, as well as their preferred and trusted sources of this information;

- (2) appreciate adolescents' experiences with intimate (romantic and/or sexual) relationships, as well as sources of influence to either enter or delay entry into such relationships;
- (3) assess adolescents' health-seeking behaviors and the factors that facilitate or hinder seeking sexual and reproductive health services;
- (4) understand the external influences on adolescents' self-development in general, including their self-efficacy and aspirations.

The IDIs also included eighteen adolescents who faced special sets of risks: three males and two females living on the streets of Accra¹; four females recruited from a shelter for pregnant girls; three males serving time at a remand institution; as well as three males and three females living at a refugee camp on the outskirts of Accra. This selection of adolescents yielded a sub-sample of females who reported being married as well as being pregnant and/or having at least one child (Guttmacher, 'Ghana In-Depth Methodology').

IDIs were conducted in the language of the area or the language with which the respondent was most comfortable (i.e. English, Akan, Ewe, Dagbani, Ga, Hausa, or Mampruli). While nearly all of these languages are spoken in Accra, Ga is indigenous to the area. Akan, however, is the main language spoken in Kumasi (the second largest

¹ My analyses show that only two females reported living on the street when asked about their living arrangement. The remaining adolescents that were described as living on the street spent a considerable amount of time on the streets mainly as a result of their occupations, but did not describe themselves as such when asked whom they lived with. Also, textual analysis of these selected interviews did not provide compelling evidence that they lived on the street, implying that the PNG Project used a different operational definition. I honor the PNG Project's definition when using quotations from these adolescents.

city, located in the central part of the country) and Ewe is widely spoken in the Volta region (located in the south-east part of the country). Dagbani and Mampruli are spoken in all three of Ghana's northern regions. Although not a Ghanaian language, Hausa is widely spoken among settler populations in urban areas. Field assistants – all of whom spoke English and at least one of the six local languages – conducted the interviews as well as focus group discussions (Guttmacher, 'Ghana In-Depth Methodology'). The IDIs were tape-recorded, transcribed, and translated into English. Interviews lasted an average of 80 minutes for younger adolescents, an average of 120 minutes for older adolescents and were conducted by same-gender interviewers (Guttmacher, 'Ghana In-Depth Methodology').

The IDIs with out-of-school and in-school youth from urban areas were conducted in Accra and Kumasi, while the IDIs with rural adolescents were conducted in Tolon-Kumbungu and West Mamprusi districts in the northern region. Because the IDIs involved in-school adolescents, monetary contributions were made to an education fund in Kumasi, Tolon/Kumbungu, and West Mamprusi. Likewise, token monetary contributions were made to the shelter for pregnant girls and the remand institution that gave their permission to interview adolescents in these special circumstances (Guttmacher, 'Ghana In-Depth Methodology').

With assistance from assembly members, representatives of chiefs, youth leaders, teachers, religious leaders, and directors of education, a social mapping approach was used to identify eligible adolescents in both urban and rural areas. The research team gained permission to access the selected communities through letters

and personal contacts with assembly members (Guttmacher, ‘Ghana In-Depth Methodology’). Metropolitan areas of Accra and Kumasi were zoned into high, medium, and low income residential areas, as classified by the assemblies of those areas. In Tolon/Kumbungu and West Mamprusi, however, the districts were zoned according to population size into urban, semi-urban, and rural areas (Guttmacher, ‘Ghana In-Depth Methodology’).

Once eligible adolescents were identified, a screening process was undertaken in the homes of the adolescents and consent was obtained from the adolescent. Consent was then obtained from a parent or guardian (Guttmacher, ‘Ghana In-Depth Methodology’).

The semi-structured in-depth interview guide included eight main topics with pre-identified themes, summarized below. The full interview guide is available upon request from Guttmacher Institute and was shared with secondary researchers. While each of the following IDI topics listed below was analyzed for this dissertation study, only those italicized are discussed in this study.

1. Background information
 - *Family and individual characteristics*
2. Puberty and Socialization
 - *Body changes*
 - *Sources of information on puberty*
 - *Initiation ceremonies*
3. Relationships

- First boyfriend/girlfriend (never/ever)
- First sexual experience (never/ever)
 - Current or last sexual experience
 - Pressure to have sex²
 - *Pressure not to have sex*

4. Healthcare seeking

- *Actual health situation*
- *Hypothetical health situation (if no actual health issue reported)*

5. Risk Assessment and Perceptions

- Risk assessment and hypothetical risk situations
- Perceptions of HIV/AIDS and premarital pregnancy
 - Personal knowledge of someone who had HIV/AIDS

6. Information and communication

- *HIV/AIDS (used, preferred, and trusted sources of information)*
- *Pregnancy (used, preferred, and trusted sources of information)*
- *Usefulness of talks*

7. Religious groups

- *Belonging to and helping with decision-making*

²Coercive experiences have been linked to sexual risks throughout the life course (Moore et al. 2007). In Ghana, Moore et al. (2007) have found that up to 30% of Ghanaian females aged 12-19 years reported that they were “not willing at all” to have sex at their first sexual experience. Another study conducted among 15-24 year olds confirms that sexual coercion is an important problem among females in Ghana (Karim et al. 2003). Even though I analyzed adolescents’ narratives about persons who had ever pressured them to have sex in the IDIs, these analyses are not presented in this study since no adolescent stated that their sibling had pressured them into having sex. Data from PNG’s national survey indicate that 2% of females reported that their sibling had coerced them into having sexual intercourse. No males reported being forced into having sex by a sibling.

- *HIV/AIDS and pregnancy prevention-related activities*

8. Perceptions of Self and Aspirations

- What other people think of adolescent
- What adolescent wants his/her life to be like in the next five years
- *Whom adolescent most wants to be like*

3.5.c. PNG surveys. Named the National Survey of Adolescents, the PNG surveys were conducted among 12-19 year-old males and females, between January and May 2004 in Burkina Faso, Ghana, Malawi, and Uganda. Following the design of the Demographic and Health Surveys, the PNG national surveys were designed to be comparable across countries and to include a wide range of measures of family context (Biddlecom et al. 2007). In each country, a first-stage systematic selection of enumeration areas was made, and a second stage selection of households per enumeration area was made from a household listing. All 12-19 year-old *de facto* residents in each sampled household were eligible for participation in the survey. The research team sought informed consent from 18- and 19 year-olds. For 12-17 year-olds, consent from a parent or caretaker was first obtained before the eligible minor adolescent was approached for assent to be included in the survey (Awusabo-Asare et al. 2007).

The survey used two instruments. The first was a household screener from which information on household structure and eligible adolescents for individual interviews were derived. The household screener also documented socio-demographic

characteristics of all the members of and visitors to the selected households, including age, sex, education level, and relationship to head of household. The household screener also garnered information on assets including each household's access to drinking water and sanitation, as well as land ownership and possessions (Awusabo-Asare et al. 2007). Second, an adolescent survey questionnaire was used to collect information on a wide range of issues experienced by youth; data on their social environment, knowledge, attitudes, sexual and reproductive experiences; and key behavioral outcomes such as condom use and current sexual activity. Specifically, the adolescent questionnaire covered the following topics:

- (1) *Background characteristics of respondents*: education, work, and religion;
- (2) *Family and social group information*: contact with and characteristics of biological mother and father, presence of mother-figures and/or father-figures in household, membership and office-holding in social groups or clubs;
- (3) *Reproductive experiences*: age at puberty, birth history, fertility preferences, knowledge and experiences of pregnancy (including how pregnancy occurs), and abortion;
- (4) *Sexual education*: content, format, and exposure;
- (5) *Contraceptive methods*: knowledge of, information about and use of services, correct use of and attitudes about male condoms, and perceptions of different sources of contraceptive methods;
- (6) *Marriage/union formation and sexual activity*: marital status/partnerships, experience with sexual intercourse, and, for 12-14 year-olds, other kinds of sexual activities;

- (7) *History of sexual relationships*: characteristics of sexual relationships and contraceptive methods used with the first sex partner and up to three sex partners in the 12 months prior to the survey; receiving money or material goods in exchange for sex; reasons for abstaining from sex for those who had never had sex or did not have sex in the 12 months prior to the survey;
- (8) *HIV/AIDS*: knowledge and sources of information, knowledge of and experience with voluntary counseling and testing;
- (9) *STIs other than HIV*: knowledge of and experiences with other STIs, information about sources of services and perceptions of different sources for STI treatment;
- (10) *Sociocultural practices*: experiences and timing of initiation rites, circumcision, recent experiences with injections, communication with family and others about sex-related matters and attitudes about sexual activity;
- (11) *Worries and fears*: financial deprivation and other issues during childhood, substance abuse, HIV, pregnancy, present financial situation and related issues;
- (12) *Physical and sexual abuse*: knowledge and experience of abuse (these questions were asked to a subset of randomly selected adolescent from each household sampled).

On the whole, interviews were completed with 5,955 adolescents in Burkina Faso, 4,430 in Ghana, 4,031 in Malawi and 5,112 in Uganda. Individual response rates ranged between 86.6% (Uganda) and 95.2% (Burkina Faso) (Biddlecom et al. 2007). The response rate for Ghana was 92% (Awusabo-Asare et al. 2007).

3.6. – *Analyzing qualitative data*

By analyzing qualitative data, researchers reveal categories, relationships, and assumptions that inform the participants' beliefs, experiences, and attitudes (McCracken 1988). According to Strauss and Corbin (1998), qualitative analysis represents the interplay between the researcher and the data, recognizing the subjective selection and interpretation of data being examined. Onwuegbuzie et al. (2009b) explain that the process of qualitative analysis is to bring meaning rather than search for the truth.

Qualitative data analysis should be systematic (Basit 2003; Krueger and Casey 2000). Through systematic and iterative analysis, qualitative researchers gain a deeper understanding of the phenomenon being studied and continually refine their interpretations (Basit 2003). This systematic analytical process involves a number of stages, including examining, coding, and organizing the data into categories as well as tabulating or recombining the evidence gathered (Basit 2003; Yin 1989).

Integral to the analytical process, data coding may be understood as using labels to allocate meaning to the descriptive or inferential information compiled during the research study (Basit 2003). Coding was conducted manually, but it is increasingly being replaced by electronic methods that enhance the management of qualitative data (Basit 2003). However, these electronic methods do not replace the process of analysis because researchers must still create the categories, code the data, and make relevant decisions (Basit 2003). The human task remains to bring meaning to the individual narratives as well as be imaginative and analytical enough to decipher the

relationships between quotes and the larger data (Onwuegbuzie, Johnson, and Collins 2009b). As Coffey and Atkinson (1996) conclude, no amount of routine analytic work can engender new theoretical insights without disciplinary knowledge and creative imagination.

Constant comparison analysis is a method that was developed and first used in grounded theory research by Glaser and Strauss (1967). Strauss and Corbin (1998) describe three main stages involved in constant comparison. Referred to as ‘open coding,’ the first stage entails the division of data into smaller parts and a descriptive code is attached to each of these parts. The second stage, called ‘axial coding,’ involves the grouping of codes into categories. In the third stage known as ‘selective coding,’ the researcher develops a number of themes that summarize the content of these categories (Strauss and Corbin 1998). Constant comparison analysis has been used to analyze several types of qualitative data, particularly when there are multiple groups or individuals for the same study (Leech and Onwuegbuzie 2007; Onwuegbuzie et al. 2009a). Classical content analysis, on the other hand, involves the process whereby smaller chunks of data are each associated with a code; codes are then grouped and counted (Morgan 1997). As described in the three-element coding framework (Morgan 1997), classical content analysis allows researchers to determine (1) whether each participant used a given code; (2) whether each group used a given code; and (3) all instances of a given code. In the present study, I use the constant comparison analysis method since my interest is not merely to determine the frequency of a code, but also the context within which these codes emerged in adolescents’ narratives. I elaborate on my coding procedures below.

Generating frequencies beyond content analysis is usually frowned upon in qualitative analysis (e.g. Sandelowski 2001; Sim 1998). Yet, Sechrest and Sidani (1995) emphasize that qualitative researchers repeatedly use terms like ‘most,’ ‘many,’ ‘several,’ and ‘frequently.’ These terms, they argue, are fundamentally quantitative (Sechrest and Sidana 1995). Not surprisingly then, the use of simple descriptive counts of categories is endorsed by some methodologists (Carey and Smith 1994; Kidd and Parshall 2000; Morgan 1997; Morgan 1998). According to Sandelowski (2001), when counts are contextualized, they can provide richer information than would be obtained by using qualitative data alone. Barton and Lazarsfeld (1954) advocated for the use of what they termed ‘quasi-statistics,’ which denotes the use of descriptive statistics that can be derived from qualitative data. Similarly, Maxwell (2005) asserts that quasi-statistics lets researchers determine the *amount* of evidence in the data that lends itself to a particular conclusion, including the number of discrepant instances as well as the sources from which they were obtained (p. 113, emphasis in original). Onwuegbuzie et al. (2009b) also contend that, where possible, enumerating the frequency of a particular viewpoint or experience expands the data instead of reducing them. The authors clarify that it is more informative to report, for instance, that 8 out of 9 participants espoused a given viewpoint (data expansion) than to report that the majority of participants held this view point (data reduction). They also explain that enumerating data can help validate inferences made about consensus or dissent (Onwuegbuzie et al. 2009b). In my study, I carry out analyses of the qualitative data and use quasi-statistics to ascertain the amount of evidence as purported by Maxwell (2005). However, I rely on data from the nationally

representative survey whenever those relevant data are available.

3.7. – *Secondary data analysis*

In this section, I discuss the merits and limits of secondary analysis in general and secondary qualitative data, in particular. Secondary analysis involves the use of existing data to answer research questions that may or may not have been intended when the data were first collected or analyzed (Heaton 2004; Hinds, Vogel, and Clarke-Steffen 1997; Lobo 1986; Notz 2005). Although research studies typically yield more data than can be analyzed by the original research team (Knapp 1998), primary qualitative data is not often used as a source of data beyond its original research intention (Thorne 1994; Van Den Berg 2005). Secondary qualitative analysis may be conducted using interview transcripts, field notes, audiotapes, or videotapes (Rew et al. 2000) as well as geospatially referenced data (Cope and Elwood 2009).

Through secondary analysis, data can be reexamined and reworked from an unexplored perspective or dimension (Bornat 2005; Corti, Witzel, and Bishop 2005; Gleit and Graham 1989; Heaton 2004; Notz 2005; Rew et al. 2000). Such analysis also serves to corroborate, validate, or redefine the original analysis (Heaton 2004).

Secondary qualitative data analysis may be undertaken for several reasons: answering questions or analyzing themes that emerged from, but were not fully analyzed in the original study (Thorne 1994); creating a future research study (Morgan 1998; Notz 2005); employing a new unit of analysis or a subset of cases in a more focused analysis; and analyzing all or part of a data set with a new analytical focus (Hinds,

Vogel, and Clarke-Steffen 1997). Secondary data can also yield new information that helps to identify concepts and formulate theoretical frameworks (Abdellah and Levine 1994).

Secondary analysis of qualitative data has been scrutinized with regard to its use, methods of analyses, data interpretation, strengths and limitations, as well as its methodological, epistemological, ethical, and theoretical considerations (see Bornat 2005; Corti, Witzel, and Bishop 2005; Gillies and Edwards 2005; Gladstone, Volpe, and Boydell 2007; Hammersley 2010; Medjedović and Witzel 2005; Notz 2005; Van Den Berg 2005).

I now describe some of the important issues to consider when conducting secondary qualitative analysis as well as some of the advantages and disadvantages of secondary data analysis.

Before embarking on a secondary qualitative analysis, it is important to reflect on the advantages that a primary study data offers to explore new research questions (Heaton 1998, 2004; Thorne 1994). This is because the process of secondary qualitative data analysis entails a careful approach to conceptualizing the issue under study, informed by a sound theoretical and/or conceptual framework guiding the research process (Heaton 1998; Heaton 2004; Thorne 1994). The process also involves identifying relevant research questions, delineating and operationalizing concepts and relationships, devising new coding systems, having the necessary analytical skills to engage in meticulous analysis, as well as having the time and patience to appreciate

the strengths and limitations of the data being used (Elder, Pavalko, and Clipp 1993; Rew et al. 2000).

Rew et al. (2000) submit that the relationship between the participants from whom the data were originally collected and the population to whom the new set of research questions applies should be clearly established by the secondary researcher. Equally important is the need to conduct a thorough review of the literature in general and to become familiar with the published literature using the existing data (Hofferth 2005; Rew et al. 2000). The latter ensures that the proposed secondary analysis has not already been conducted (Rew et al. 2000). Moreover, researchers must determine whether the original data collected are valid and reliable (Rew et al. 2000). Before analysis, the secondary researcher must obtain consent from the original research team and know the existing protocols for disseminating findings (Rew et al. 2000). Admittedly, my criteria for determining whether PNG's data were valid and reliable were not necessarily rigorous. I have accepted the Guttmacher Institute's research design. Their focus groups and in-depth interviews topics were based on topics identified in the literature as relevant to adolescent health in Africa and their survey was modeled after the widely used Demographic and Health Surveys. Shortly, I discuss the process for obtaining consent from the Guttmacher Institute and familiarizing myself with their data protocols.

Central to qualitative research is the concept of context (Geertz 1973; Holstein and Gubrium 2004). Much of the discussion about context emanates from Clifford Geertz's "thick description" which refers to context as a way of conceptualizing how a

phenomenon is associated with something greater than itself (Geertz 1973). One criticism of secondary qualitative research is that it may lack in-depth information about context relevant to the original study (Gladstone, Volpe, and Boydell 2007). While some researchers have argued that secondary analysis of existing data requires researchers to familiarize themselves with the nature of the data and the historical, social, and political context in which the original data were collected (Rew et al. 2000), others insist that context is a discursive product made relevant only by what participants themselves say (Schegloff 1997). Schegloff (1997) urges researchers to use textual data to examine the contextual elements invoked by the discourse, as constructed by the participants. Van Den Berg (2005) maintains that Schegloff's concept of relevant context is too limited because what is of relevance to participants does not need to be made explicit in what they say. Fielding (2004) adds to the debate, contending that the relationship between context and data is a practical, rather than an epistemological or theoretical matter and that context is tangible in any data. It can also be argued that when fieldwork is conducted by hired research assistants and managers, the researchers who eventually analyze, interpret, and write up the findings from the original study may not have first-hand experience with the data collection process or access to the actual social context established between the interviewer and interviewee (Gladstone, Volpe, and Boydell 2007). Thus, having detailed documentation becomes key and a useful strategy for understanding context (Gladstone, Volpe, and Boydell 2007; Heaton 2004). Documentation for PNG's methodology and data collection procedures were provided to secondary researchers

who requested data. I explain the contents and advantages of the documentation provided to me by Guttmacher below.

3.7.a. Advantages of secondary (qualitative) data analysis. There are a number of convincing reasons to pursue secondary analysis. Collecting data is usually the most laborious and costly part of the research process. The most recognized advantages of secondary data analysis are time saved, low costs, and availability (Heaton 1998; Hofferth 2005; Holloway 1997; Notz 2005; Rew et al. 2000). Secondary researchers also avoid any direct or indirect problems associated with data collection, including permission to collect sensitive and/or controversial information (Rew et al. 2000). The timeliness of data is another advantage of secondary data analysis because research can be conducted on contemporary issues that are of interest to policymakers, rather than having to design a study from scratch, only to have those issues resolved or forgotten by the time the data are collected or analyzed (Hofferth 2005). Santacroce et al. (2000) also demonstrate the benefit of secondary data analysis in collaborative research between academic and non-academic researchers, such as clinicians.

3.7.b. Disadvantages and concerns of secondary (qualitative) data analysis. Discordance between new research questions and existing data can be a major drawback of secondary data analysis, particularly when the questions and perspectives put forth by the original data are not congruent with the questions of interest to the secondary analysis (Hofferth 2005; Notz 2005; Rew et al. 2000). Another downside of secondary analysis is the time-consuming investment of learning new data (Gladstone,

Volpe, and Boydell 2007; Hofferth 2005). Hofferth (2005) explains that it takes time to familiarize oneself with the questions, documentation, as well as the structure and limits of the data. Researchers can be faced with challenges when shaping the data to correspond to the new research questions, a process which is likely to involve an intensive process of understanding the data, coding variables, and revisiting research questions (Elder, Pavalko, and Clipp 1993). Moreover, secondary qualitative data may not permit researchers to follow established qualitative techniques such as grounded theory (Szabo and Strang 1997). Insufficient documentation of the original data collection procedures can also be a limitation to secondary data analysis because researchers may not gain a full understanding of the data being analyzed, likely affecting the interpretation and reporting of findings (Rew et al., 2000). Additionally, archived qualitative data sets are not as widely accessible as are quantitative data sets. Santacroce et al. (2000) assert that researchers interested in reanalysis must often rely on their own information networks to identify existing qualitative data sets. A final and obvious disadvantage to secondary qualitative analysis is that secondary researchers are seldom involved in the data collection process, thus limiting the opportunity to provide input in the sampling frame as well as concepts and issues to be studied.

The feasibility of secondary qualitative data analysis remains a concern (Mauthner, Parry, and Backett-Milburn 1998; Van Den Berg 2005). According to Van Den Berg (2005), the feasibility of secondary qualitative analysis depends on the goal(s) of the research, the type of textual data, and the amount of information made available to secondary researchers regarding the aspects of context that should be

accounted for in the analysis. Van Den Berg (2005) recommends a minimum set of information with which secondary analysis researchers should be provided, namely full transcripts or interviews; background characteristics of the interviewer and participants that could influence their interaction; location, time, and setting of the interview; the selection process of participants and procedures for consent to participate; and the larger social context within which the research is being conducted. In discussing a collaborative project that involved the secondary analysis of qualitative HIV-related research collected by clinicians and academics, Santacroce et al. (2000) raise another concern of secondary analysis where the primary research can become concerned that “given access to original data, the researcher conducting the secondary analysis will critique the way the interviews were conducted or refute the findings of the primary analysis. The latter can be a worry for the primary researcher who compiled the data whether they are an experienced HIV-clinician or an academic researcher” (100). Santacroce et al.’s point became relevant in my secondary analysis in two instances: first, with regards to the adolescents defined as a street child in the IDIs. While the PNG-Ghana research team described nine adolescents as street children, my analysis of living arrangement suggested that only two females could be regarded as street children since they reported not living with any family members (one reported living in a kiosk and the other at a pregnancy shelter). According to my textual analysis of the transcripts, the remaining adolescents all reported living with a family member or another adult. Second, published reports of results of Ghana’s PNG survey indicate a mean age of experiencing puberty of 14.8 years for females and 15.1 years for males (see Awusabo et al. 2006 p. 54). My own analyses, however, showed a

mean age of 13.8 years for females and 13.9 years for males. While I do not refute the Guttmacher Institute's team findings as a secondary researcher (indeed, I use their street child nomenclature when using a quotation and use the published results), I acknowledge these discrepancies and how I arrived at my own results.

3.7.c. Studies using secondary qualitative analysis. The concerns and disadvantages discussed here notwithstanding, the advantages and usefulness of secondary data analysis have prompted its use as a research methodology by economists, sociologists, psychologists, family researchers, as well as by nursing researchers and historians (see Abdellah and Levine 1994; Gleit and Graham 1989; Hammersley 2010; Hofferth 2005; Jacobson, Hamilton, and Galloway 1999; Kynaston 2005; Rew et al. 2000). This has resulted in a growing number of studies, some of which are summarized here.

Long and Weinert (1992) used secondary analysis to study the perceptions of health among rural and urban adults with multiple sclerosis, even though their original study examined the meaning of health, self-reported measures of physical and mental health, disability, and social support. Rutherford and Parker's (2003) original ethnographic study investigated health beliefs and practices of rural Salvadoran women, but the authors used the same data to analyze the defining attributes of inner strength of the women who had endured over a decade of civil war. Gillies and Edwards (2005) used an historical analysis approach to explore social change and continuity in family life by using accounts collected in the 1960s and comparing them with recent accounts from parents. Likewise, Bornat (2005) analyzed interviews originally collected in the 1960s among the forerunners of geriatric medicine about

their personal successes as doctors. Using reconstructive oral history and digitized analysis, Bornat's reanalysis detailed the contributions of doctors trained overseas to the development of the discipline and practice of geriatric medicine. Notz's (2005) analysis of original data on the organizational restructuring in large enterprises and the consequences for middle and lower managers in Germany resulted in a secondary analysis of work/life balance strategies of male middle managers. Notz's secondary qualitative analysis, in turn, was the basis for another primary study on middle managers, their spouses and personnel officers. Prompted by the richness of parents' transcripts from previous research on young people's experiences of motivation during the first episode of psychosis, Gladstone, Volpe, and Boydell (2007) analyzed a subset of these data by focusing on parents' narratives and descriptions of their experiences of obtaining mental health services for their child. Finally, Gladstone et al.'s (2007) secondary analysis involved investigating a new empirical question, rather than a methodological or theoretical question, whereas Szabo and Strang (1997) analyzed data about family caregivers to generate a grounded theory study.

It is necessary to note almost all of the abovementioned secondary analyses were conducted by the primary researchers themselves. The barriers associated with a secondary researcher like me who did not participate in the collection of the original data present several insurmountable disadvantages which are recognized in Chapter 6. Nevertheless, having access to documentation that provided context for PNG's three data sources proved valuable enough to proceed with a secondary analysis and examine the role of siblings in adolescent sexual and reproductive health decision-making.

3.8. – Accessing data sources

The majority of peer-reviews articles based on data from the four-country PNG Project were published in the African Journal of Reproductive Health (volume 11, issue 3) in December 2007. Before that, however, several working papers and reports had been published by Guttmacher Institute and allowed me to familiarize myself with the richness of the data. The Guttmacher Institute made PNG data sources for all four countries available to secondary researchers by December 2007, at which time I requested these data by completing a form. I was asked to describe my research objectives and how the data would help to answer my research questions. After signing an agreement to use the data solely for the purpose of the research interests described and to store the data in a safe and confidential place over time, I was given access to the data in electronic form and saved them on a secure server provided by the Cornell Institute for Social and Economic Research (CISER). I received the same set of data files for each country, namely a household survey, an adolescent survey, and full transcripts for 16 focus groups and 102 in-depth interviews. Also included were files describing access to communities, data collection methodology and time frame, the participant selection process, background information about the research team (including name, age, gender, languages spoken), as well as the challenges encountered throughout the research process. All transcripts included documentation about the interview setting. The focus group transcripts included information about the adolescents' gender, age group, schooling status and residence as well as pseudonyms chosen by adolescents. Interview transcripts included the same socio-demographic

characteristics for each adolescent as well as an individual alpha numeric identifier. Interviewers' prompts, probes, comments, and memos were included verbatim throughout in the transcripts, providing insight into the interview process.

Surveys were sent as SPSS files, the same software I used for part of my quantitative analysis. Transcripts were sent in text file format, which facilitated transfer into Atlas.ti, the qualitative analysis software I used for my analysis. Aside from a few transcripts that contained minor typographical errors and misleading punctuations, the information submitted was intact. Interviews were translated using British English grammar and spelling, which I maintained in the quotations I use.

Although I received data files for Burkina Faso, Ghana, Uganda, and Malawi, my dissertation focuses on the data relating to Ghana, the context with which I am most familiar.

3.9. – *Secondary analysis of FGDs, IDIs, and survey*

In this dissertation, my aim of analyzing multiple data sources is not simply to re-use the data, but to generate new knowledge by asking new empirical research questions using the original data. I seek to expand our understanding of the role of siblings in adolescents' sexual and reproductive health knowledge, attitudes, and behaviors while relying on theories of social learning and research on sibling relationships (which include communication and other interactions).

3.9.a. Data management and analytical strategy. In this section, I describe the analytic procedures that I used to conduct my qualitative and quantitative analyses. The FGDs and IDIs were both coded and analyzed using Atlas.ti (version 6.0), a software package designed for the analysis of qualitative data. While each focus group was treated as a unit of analysis, each adolescent was treated as a unit of analysis for the IDIs. Some of the data from the IDIs were also translated into quantitative measures created in SPSS. On the other hand, basic frequencies, cross-tabulations, and regressions based on survey data were performed using SPSS and STATA. I elaborate on my analytic procedures in the following paragraphs.

3.9.a.i. Coding focus group discussion data. I coded each focus group transcript by identifying references made to the words ‘sibling’, ‘brother’, and ‘sister’. The next step involved iterative textual analyses of all 16 FGDs, examining the contexts within which adolescents discussed sibling communication and interactions. Because the FGDs were exploratory in nature, fewer and more general topics were covered. In contrast, the IDIs required even more detailed iterative analyses, explained below.

3.9.a.ii. Coding in-depth interview data. I coded and analyzed the IDIs in two main steps: first, the analysis of each adolescent’s interview and second, of each pre-defined topic and theme in the interview guide. Details of analytical steps are as follows:

- (a) I read and coded IDI according to the pre-defined topics, categories, and themes that emerged during textual analysis. To identify, manage, and explain

the latter, I created a manual listing all codes and sub-codes (Appendix A). Given my research interests, I also created sub-codes – including ‘*Sisters*,’ ‘*Brothers*,’ ‘*Siblings*,’ ‘*SibExperience*,’ ‘*Caretaking*,’ and ‘*Role of Siblings in the Family*’ to capture parts of the data relevant to sibling communication and interactions.

- (b) I anchored each textual passage (henceforth referred to as ‘quotations’) that mentioned a sibling to a ‘*Sisters*,’ ‘*Brothers*’ and/or ‘*Siblings*’ code. I further anchored each of these quotes to a ‘*Brother2Brother*,’ ‘*Brother2Sister*,’ ‘*Sister2Brother*,’ and ‘*Sister2Sister*’ sub-code to establish sibling communication and interactions, according to sibling dyads (i.e. according to the gender of the adolescent and that of the sibling). In instances where adolescents did not specify the gender of their sibling, I used ‘*Brother2Sibling*’ and ‘*Sister2Sibling*’ sub-codes. Since many of the adolescents’ responses were not one-dimensional, sub-codes were used for more than one category and theme.
- (c) I then revised the code manual to include definitions/explanations of all emerging sub-codes. The latter were refined and revised throughout the analytical process.
- (d) Using an Atlas.ti command, I retrieved quotations pertaining to each IDI. Upon reading them in context, I recoded quotations in Atlas.ti, where necessary. Given that adolescents were asked to discuss their sources of information about sexual and reproductive health matters, I assigned a value to each type of

source mentioned in the IDIs during this second round of coding. Appendix B shows the full list of sources as well as the values assigned.

- (e) Following Maxwell (2005)'s 'quasi-statistics' approach, I created a small dataset in SPSS (version 19) with variables determined from the coding of the qualitative data, reflecting topics and themes of interest. Previously assigned values were transferred into SPSS. The number of variables created reflected the highest number of sources of information reported by adolescents. Consider the topic of 'pregnancy prevention,' for example. While adolescents mentioned an average of two sources of information, others mentioned up to five. Thus, sources of pregnancy prevention information were captured in a total of five related variables: '*PregTalk1*,' '*PregTalk2*,' '*PregTalk3*,' '*PregTalk4*,' and '*PregTalk5*'. If an adolescent mentioned that his/her mother and brother had talked to him/her about pregnancy, only '*PregTalk1*' and '*PregTalk2*' were assigned the designated value for 'mother' and 'brother.' I also created variables to reflect adolescents' social and demographic characteristics, their living arrangement, and whether adolescents mentioned having at least one sibling. Similarly, I created dichotomous variables for sexual activity status (never = 0; ever = 1), teen pregnancy status (never pregnant/fathered a child = 0; ever had/fathered a child, or currently pregnant/girlfriend = 1), and marital status (never = 0; ever = 1), as reported in the IDIs. In the end, each adolescent had an individual and numeric profile, allowing me to generate counts where applicable and necessary.

- (f) I performed basic frequencies and cross-tabulations in SPSS for all variables of interest from the IDIs. I then transferred my results into Excel spreadsheets to aggregate the frequencies. I also analyzed all variables by gender, age, schooling status, and residence.
- (g) Using another Atlas.ti command, I performed queries, which combine codes and yield quotes pertaining to chosen combinations. The ‘*Sisters*’, ‘*Brothers*’ and ‘*Siblings*’ anchor codes were combined with all remaining codes, respectively. These queries helped me to demarcate all quotations referencing siblings and provided insights into sibling communication and interactions. I define sibling communication or interaction by an adolescent’s reference to a discussion with a sibling. I also define a sibling relationship by an adolescent’s reference to an aspect of relationship quality, including trust, confidence, having good rapport, and/or a reference to an action taken or behavior engaged in based in part on his/her communication or interaction with a sibling. These definitions were added to the code manual.
- (h) To analyze the larger context, I retrieved quotes from Atlas.ti based on the pre-determined topics and themes of the IDIs. Analyzing these topics and themes generated several sub-themes, which I recorded in the code manual.
- (i) I then retrieved ‘*Brother2Sister*’, ‘*Sister2Sister*’, ‘*Brother2Brother*’, ‘*Sister2Brother*’, ‘*Brother2Sibling*’, and ‘*Sister2Sibling*’ anchor quotations. These quotations allowed for a gendered analysis of sibling dyads and provided insights into the differences and/or similarities between male and

female adolescent interactions with brothers on one hand, and sisters, on the other.

3.9.a.iii. Analyzing survey data. In SPSS (version 19), I computed variables that I deemed necessary to help answer my research questions. For example, while the original survey included variables to measure used and preferred sources of communication about STIs other than HIV as well as HIV/AIDS, I computed variables to ascertain the proportions of adolescents' used and preferred sources of *either* STIs or HIV/AIDS. This step was necessary given the generally low percentages for the variables on their own. Similarly, I computed variables to ascertain the proportion of adolescents who reported receiving information from *any* sibling, parent, friend, teacher or health care provider, and media outlet.

Since the adolescent survey did not include information regarding their siblings, I merged the household survey with the adolescent survey to determine the latter. This procedure was done using STATA (version 12). Both survey files were linked by a unique respondent identifier made up of the cluster number, household number, and adolescent's line number. The household file provided information on the household head and each member in the household as well as their relationship to the household head. All those who were designated by the household head as a son or daughter, step child, adopted child or fostered child were regarded as siblings of the index adolescent. The household survey file also included the gender and age of each household member, which enabled me to determine the sibling birth order as well as sibling's gender. Merging these surveys allowed me to compute variables to ascertain

the number of siblings, older siblings, older brothers, and older sisters. I performed frequencies, cross-tabulations, and regressions using existing survey and new variables.

3.9. b. Measures. I focused on PNG's four main socio-demographic measures pertaining to the adolescent: *gender* (male/female), *age* (12-19 years, divided into two main groups in survey analyses: 12-14 years and 15-19 years); *residence* (urban/rural); and *current schooling status* (being in school or out-of-school at the time of the survey). Merging the household and adolescent survey files also yielded four sibling related measures: *the number of siblings*, *older siblings*, *older brothers*, and *older sisters*.

This dissertation study also provides descriptive information on social and behavioral characteristics that have been noted to influence adolescent behaviors. These characteristics became apparent in the textual analysis of the focus group discussions and in-depth interview and thus, their distributions at the national level were also presented as descriptive information: *union status* (in union/not in union); *co-residence with biological parents* (live with biological parent(s)/does not live with biological parent(s)); *sexual activity* (ever had sex/never had sex); pregnancy status (has child or currently pregnant/never been pregnant); *relationship status* (have girlfriend or boyfriend/does not have girlfriend or boyfriend); and *pubertal changes* (experienced menarche or male body changes/not experienced changes).

I analyzed six topics covered in the survey, based on the following questions:

1. Sexual-matters

- i. *“Did anyone in your family ever talk to you about sex-related matters?” (yes/no)*
- ii. *“Did anyone outside your family ever talk to you about sex related matters?” (yes/no)*

2. Contraceptives

- i. *“Can you tell me where you got information about methods to prevent pregnancy?”*

3. STI/HIV/AIDS information

- i. *“Can you tell me where you got information about infections people can get from sexual contact?”*
- ii. *“Can you tell me where you got information about HIV/AIDS?”*

4. Preferred source of information about contraceptives

- i. *“Thinking of all the possible sources (not just the ones you have mentioned), where would you prefer to get information about methods to prevent pregnancy?”*

5. Preferred source of STI/HIV/AIDS information

- i. *“Thinking of all the possible sources (not just the ones you have mentioned already) where would you prefer to get information about these kinds of infections?”*

- ii. *“Thinking of all the possible sources (not just the ones you have mentioned already) where would you prefer to get information about HIV/AIDS?”*

6. Sexual abstinence

- i. *“From whom do you feel pressure not to have sexual intercourse?”*

3.10. – Similarities and differences in PNG data analysis

It is essential to point out that the Guttmacher Institute published two main reports based on results of the Ghana PNG data. Awusabo-Asare et al. (2006) provided a synthesis of the results from the survey, while Kumi-Kyereme et al. (2007) provides an overview of the findings from the IDIs. Although I had read these reports when they were first published (i.e. prior to requesting the PNG data), I read them again only at the end of my own secondary analyses of the IDIs and the survey. While my data overlap with some aspects of these reports, my analyses go beyond them in a number of ways. Computing new variables from the survey data, for instance, produced new associations that are not discussed in the survey report. Because of my focus on sibling communication and interactions, my bivariate and multivariate analyses also produced new findings. Where the data do overlap are in the basic frequencies and cross-tabulations.

Furthermore, in my analysis of the IDIs, I performed a thorough content analysis of the frequency of sources of information mentioned by each adolescent, per

topic. Unlike Kumi-Kyereme et al. (2007)'s report, for example, I do not lump all family members together in my analysis. My use of constant comparison technique helped to ascertain new categories such as sibling dyads and sub-themes such as social and observational learning. This technique also helped to determine the relevance of predetermined categories and themes to the role of siblings in shaping adolescent sexual and reproductive health. Throughout this dissertation, I draw on the detailed review of qualitative and quantitative literature that Awusabo-Asare et al. (2006) and Kumi-Kyereme et al. (2007) provide as a way to contextualize adolescent sexual and reproductive health in Ghana, and cite the authors accordingly.

3.11. – *Socio-demographic characteristics of adolescent samples*

Given the mixed methods approach used in this dissertation, three samples were analyzed. Summarized in **Table 3.1** is distribution according to gender, age group, schooling status, and residence of the 16 focus groups conducted in Ghana. While the original sample of adolescents who participated in the in-depth interview included 102 adolescents, the sample used in this dissertation study excluded any adolescents who reported being orphaned (n=1, male) and any who mentioned being cared for exclusively by their siblings (n=1, male), resulting in a sample of 100 adolescents (see **Table 3.2**). Adolescents aged 12-14 year comprised nearly a third of the IDI sample. A larger proportion of these participants reported that they were from urban areas (58.0%), never married (90.0%) and out-of-school (64.0%). Slightly less than three-quarters of the sample (72.0%) reported that they had never engaged in

sexual activity and 83% reported that they had never been pregnant or gotten someone pregnant. More than half of the IDI sample (56.0%) made mention of at least one sibling during the interview. **Table 3.3** presents relevant socio-demographic data derived from the national sample, according to gender and age group. The survey sample was divided in half according to gender. Younger adolescents (12-14 years) made up approximately 44% of the national sample and over three-quarters of all adolescents reported that they were currently in school. A higher proportion of adolescents hailed from rural areas (53.3%) compared to those from urban areas. Slightly less than half of adolescents mentioned living with both parents and about a quarter reported living with their mother only. Roughly 3% of female adolescents reported a sibling as the head of their household as did 4% of male adolescents (Awusabo-Asare et al., 2006, results not shown). Additionally, reports of sexual activity were decidedly higher among females (17.4%) than males (9.3%) and more so among older female and male adolescents compared to their younger counterparts. The proportion of females who stated that they were in a union (5.2%) was substantially higher than that of males (0.8%). Comparable proportions of females (4.4%) and males (3.9%) reported ever having had a boyfriend/girlfriend, with higher proportions among older adolescents.

Table 3.1 – Demographic characteristics of focus groups

<u>Focus Group</u>	<u>Age group</u>	<u>Gender</u>	<u>Schooling Status</u>	<u>Residence</u>	<u>Number of Participants</u>
1.	14-16 years	Male	In-school	Urban	10
2.	14-16 years	Male	Out-of-school	Urban	12
3.	14-16 years	Male	In-school	Rural	10
4.	14-16 years	Male	Out-of-school	Rural	10
5.	17-19 years	Male	In-school	Urban	10
6.	17-19 years	Male	Out-of-school	Urban	12
7.	17-19 years	Male	In-school	Rural	12
8.	17-19 years	Male	Out-of-school	Rural	11
9.	14-16 years	Female	In-school	Urban	10
10.	14-16 years	Female	Out-of-school	Urban	12
11.	14-16 years	Female	In-school	Rural	10
12.	14-16 years	Female	Out-of-school	Rural	10
13.	17-19 years	Female	In-school	Urban	10
14.	17-19 years	Female	Out-of-school	Urban	12
15.	17-19 years	Female	In-school	Rural	12
16.	17-19 years	Female	Out-of-school	Rural	9

Table 3.2 – Frequencies and percentages of adolescents’ socio-demographic and behavioral characteristics, 2004 *In-depth interviews* (Ghana)

<i>Social, Demographic, and Behavioral Characteristics</i>	<i>Frequency All Ghana</i>	<i>Percent Ghana (N=100)</i>	<i>Frequency Males</i>	<i>Percent Males (N=43)</i>	<i>Frequency Females</i>	<i>Percent Females (N=57)</i>
Male	43	43.0	43	100.0	--	--
Female	57	57.0	--	--	57	100.0
12-14 year olds	31	31.0	15	34.9	16	28.1
15-19 year olds	69	69.0	28	65.1	41	71.9
Urban	58	58.0	25	58.1	33	57.9
Rural	42	42.0	18	41.9	24	42.1
Single	90	90.0	43	100.0	47	82.5
Married	10	10.0	0	0.0	10	17.5
In-School	36	36.0	18	41.9	18	31.6
Out-of-School	64	64.0	25	58.1	39	68.4
Non-Religious	1	1.0	0	0.0	1	1.7
No religious group	1	1.0	0	0.0	1	1.7
Never Had Sex	72	72.0	36	83.7	36	63.2
Ever Had Sex	28	28.0	7	16.3	21	36.8
Teen Pregnancy	17	17.0	0	0.0	17	29.8
No Teenage Pregnancy	83	83.0	43	100.0	40	70.2
No Sibling Mention	44	44.0	22	51.2	22	38.6
Sibling Mention	56	56.0	21	48.8	35	61.4
Refugees	6	6.0	3	7.0	3	5.3
Remand	3	3.0	3	7.0	0	0.0
Street Child	2	2.0	0	0.0	2	3.5

Table 3.3 – Percentage distribution of adolescents, by socio-demographic characteristics, according to sex and age, 2004 National Survey of Adolescents (Ghana)

Characteristic	Female (N=2195)			Male (N=2235)		
	12-14 (N=956)	15-19 (N=1237)	Total (N=2193)	12-14 (N=973)	15-19 (N=1253)	Total (N=2226)
Current union status						
Not in union	100.00	93.0	96.1	100.00	99.4	99.7
In union	0.0	7.0	3.9	0.0	0.6	0.3
Residence						
Urban	46.9	50.3	48.8	42.7	46.1	44.6
Rural	53.1	49.7	51.2	57.3	53.9	55.4
Currently attending school	12-14 (N=955)	15-19 (N=1238)	Total (N=2193)	12-14 (N=977)	15-19 (N=1259)	Total (N=2236)
No	11.9	41.7	28.7	9.9	32.5	22.7
Yes	88.1	58.3	71.3	90.1	67.5	77.3
Co-residence with biological parents	12-14 (N=956)	15-19 (N=1236)	Total (N=2192)	12-14 (N=973)	15-19 (N=1252)	Total (N=2225)
Lives with both biological parents	42.4	38.8	40.4	48.6	41.8	44.8
Lives with mother only	23.9	23.8	23.8	20.6	22.8	21.8
Lives with father only	5.3	4.0	4.5	9.2	8.6	8.9
Neither biological parent, respondent in a union	0.0	4.1	2.3	0.0	0.2	0.1
Neither biological parent, respondent not in a union	28.5	29.3	28.9	21.7	26.5	24.4
Ever had sexual intercourse	12-14 (N=957)	15-19 (N=1223)	Total (N=2180)	12-14 (N=977)	15-19 (N=1248)	Total (N=2225)
No	98.3	70.3	82.6	98.7	84.5	90.7
Yes	1.7	29.7	17.4	1.3	15.5	9.3
Relationship Status						
Ever in union	0.0	9.2	5.2	0.0	1.4	0.8
Never in union, ever had sex	1.7	20.5	12.3	1.3	14.1	8.5
Never in union, never had sex:						
Ever had a boyfriend/girlfriend	1.6	6.6	4.4	1.0	6.1	3.9
Never had a boyfriend/girlfriend	96.8	63.6	78.1	97.6	78.3	86.8

Note: Ns are weighted.

Source: Awusabo-Asare et al. (2006, pp. 29; 30; 32; 54; 55)

CHAPTER 4

MULTIPLE SOURCES, YET SIMILAR MESSAGES

To ascertain the status of adolescent sexual and reproductive health, the PNG Project used three methods of data collection. The FGDs were exploratory in nature and used to inform the topics covered in the IDIs as well as the survey. Together, they addressed five principal areas: (1) persons who had discussed general sex-related matters with adolescents; (2) persons or sources that had provided adolescents information about pregnancy/contraceptives, HIV/AIDS, sexually transmitted infections (STIs) other than HIV and adolescents' preferred sources of information; (3) the timing and nature of information provided by these persons or sources of information; (4) persons who had encouraged adolescents to abstain from sexual activity; and (5) adolescents' real and/or intended health care-seeking behaviors. Outside of these overlapping areas, the IDIs offered unique information regarding sources of information about puberty, adolescents' intimate relationships, adolescents' trusted sources of sexual and reproductive health information, the usefulness of the information, and persons whom adolescents aspired to emulate.

Recognizing that adolescents' knowledge, attitudes, and behaviors are most influenced by those with whom they interact regularly, this chapter examines adolescents' multiple sources of sexual and reproductive health information based on the areas mentioned above. Findings are a combination of data from the survey and the IDIs. Rather than examining all sources of information mentioned by adolescents, this

chapter focuses on those who were most frequently reported in the survey and IDIs³: parents, friends, teachers, health care providers, the media and siblings (the latter are discussed separately in the next chapter). In this chapter, I integrate narratives from adolescents who participated in the IDIs to complement the national trends and present sub-themes that emerged from these narratives. Lastly, I offer a summary of adolescents' narratives about the information received from any sibling to highlight similarities and differences between other sources of information.

Table 4.1 presents a ranking by percentage of adolescents who reported communication with selected sources of information, according to selected topics covered in the survey. These patterns are detailed by gender and according to age group (Tables 4.2, 4.6, 4.9, and 4.12), residence (Tables 4.3, 4.7, 4.10, and 4.13), and schooling status (Tables 4.4, 4.8, 4.11, and 4.14).

4.1. – *Sex-related matters*

Even though adolescents were asked about their sources of information regarding contraceptives, pregnancy prevention, and STI/HIV/AIDS in all three data sources, they were also asked overarching questions in the FGDs and survey. In the survey, adolescents were asked to cite their sources of information about sex-related matters while in the FGDs, they were asked about sources of sexual and reproductive health in general. The survey question may be regarded as one to gauge the levels of

³ Cross-tabulations of all the sources of information mentioned by adolescents in the IDIs and survey based on my earlier analyses are available upon request. See Appendix B for complete list of sources mentioned by adolescents in the IDIs.

communication about a variety of sex-related matters, including puberty and sexual/romantic relationships. Indeed, in the IDIs, adolescents were asked about those who had discussed pubertal changes with them and those who were aware of their intimate relationships. These last two topics also came up during focus group discussions.

I hypothesized that older adolescents, those in school, and those from urban areas would be more likely to report communication about sex-related matters, but no significant differences according to gender. National data show that females were more likely to report communication about sex-related matters than males (Table 4.1). Females most frequently reported that a parent had talked with them about sex-related matters (34.2%), while males most frequently reported that a friend had done so (25.4%). For both males and females, the second most frequently mentioned source of information regarding sex-related matters was a teacher or health care provider (22.1% and 26.7%, respectively). Results from the survey revealed three patterns that were also reflected in the narratives. First, the proportion of adolescents who reported that someone had talked to them about sex-related matters generally increased with age (Table 4.2). Second, smaller proportions of adolescents from rural areas mentioned communication with family members compared to adolescents from urban areas (Table 4.3). Third, higher proportions of out-of-school adolescents indicated that a friend (or non-parent) had talked to them about sex-related matters compared to those in school (Table 4.2).

Table 4.1 – Ranking by percentage of adolescents who reported communication with five selected sources of information, by topics of interest and gender, 2004
National Survey of Adolescents (Ghana)

Ranking^a				
Topic	Males		Females	
	<i>Information Source</i>	<i>Percent</i>	<i>Information Source</i>	<i>Percent</i>
Sex-related matters	1. Any friend	25.4	1. Any parent	34.2
	2. Any teacher or health care provider	22.1	2. Any teacher or health care provider	26.7
	3. Any parent	19.8	3. Any friend	21.1
	4. Any sibling	9.1	4. Any sibling	13.2
Source of contraceptives information	1. Any media	58.3	1. Any media	56.8
	2. Any teacher or health care provider	50.0	2. Any teacher or health care provider	45.6
	3. Any friend	21.4	3. Any friend	20.8
	4. <i>Any parent^b</i>	5.3	4. <i>Any parent^b</i>	7.3
	5. <i>Any sibling^b</i>	4.0	5. <i>Any sibling^b</i>	4.2
Preferred source of contraceptives information	1. Any teacher or health care provider	43.2	1. Any teacher or health care provider	39.8
	2. Any media	35.9	2. Any media	29.2
	3. Any parent	5.6	3. Any parent	11.2
	4. <i>Any friend^b</i>	4.7	4. <i>Any friend^b</i>	5.4
	5. <i>Any sibling^b</i>	1.1	5. <i>Any sibling^b</i>	2.2
Source of STI or HIV/AIDS information	1. Any media	80.4	1. Any media	73.0
	2. Any teacher or health care provider	61.1	2. Any teacher or health care provider	62.6
	3. Any friend	22.0	3. Any friend	17.6
	4. <i>Any parent^b</i>	10.4	4. Any parent	13.8
	5. <i>Any sibling^b</i>	5.2	5. Any sibling	5.0
Preferred source of STI or HIV/AIDS information	1. Any teacher or health care provider	54.0	1. Any teacher or health care provider	51.8
	2. Any media	50.9	2. Any media	40.7
	3. Any parent	6.2	3. Any parent	10.4
	4. <i>Any friend^b</i>	3.9	4. <i>Any friend^b</i>	4.8
	5. <i>Any sibling^b</i>	1.1	5. <i>Any sibling^b</i>	1.7
Encouragement to abstain from sex	1. Any parent	56.8	1. Any parent	65.5
	2. Any friend	37.4	2. Any friend	31.2
	3. Any sibling	14.4	3. Any sibling	22.0

^aRanking is regardless of adolescents' age group, schooling status, or residence

^bItalics represent similarity in proportions as reported by adolescents (± 5 percentage points)

Table 4.2 – Percentage of adolescents, by persons who talked about sex-related matters with adolescents, according to gender and age group, 2004 National Survey of Adolescents (Ghana)

Characteristic	Age Group					
	Female			Male		
Persons who ever talked to respondent about sex-related matters	12-14 (N=960)	15-19 (N=1228)	Total (N=2188)	12-14 (N=981)	15-19 (N=1252)	Total (N=2233)
Brother	2.3	4.2	3.4	3.9	9.2	6.8
Sister	9.1	13.3	11.4	2.1	4.6	3.5
Father	11.4	13.9	12.8	10.1	13.3	11.9
Mother	29.2	35.2	32.6	14.2	16.9	15.7
Male friend	3.3	7.0	5.4	15.8	31.1	24.4
Female friend	14.9	24.2	20.1	1.3	5.9	3.9
	12-14 (N=961)	15-19 (N=1234)	Total (N=2195)	12-14 (N=981)	15-19 (N=1254)	Total (N=2235)
Any sibling	10.2	15.5	13.2	5.3	12.1	9.1
Any parent	30.3	37.2	34.2	16.8	22.2	19.8
Any friend	15.5	25.5	21.1	16.1	32.6	25.4
Any teacher or health care provider	25.7	27.5	26.7	18.4	24.9	22.1
Any family member	39.9	49.8	45.5	21.8	33.1	28.2
Any non-family member	40.9	45.2	48.7	34.6	55.0	46.0

Notes: Totals may exceed 100.0 because multiple responsible are possible. Ns are weighted.

Table 4.3 – Percentage of adolescents, by persons who talked about sex-related matters with adolescents, according to gender and residential location, 2004
National Survey of Adolescents (Ghana)

Characteristic	<i>Residence</i>					
	Female			Male		
Persons who ever talked to respondent about sex-related matters	Urban (N=1068)	Rural (N=1120)	Total (N=2188)	Urban (N=996)	Rural (N=1236)	Total (N=2232)
Brother	3.7	3.1	3.4	7.0	6.7	6.8
Sister	13.8	9.2	11.4	4.1	3.0	3.5
Father	13.1	12.6	12.8	13.7	10.4	11.9
Mother	38.8	26.7	32.6	20.3	12.1	15.7
Male friend	8.0	2.8	5.4	26.7	22.5	24.4
Female friend	24.3	16.1	20.1	6.3	1.9	3.9
	Urban (N=1072)	Rural (N=1123)	Total (N=2195)	Urban (N=997)	Rural (N=1238)	Total (N=2235)
Any sibling	15.6	10.9	13.2	9.9	8.5	9.1
Any parent	40.3	28.3	34.2	24.5	16.1	19.8
Any friend	24.7	17.7	21.1	28.4	22.9	25.4
Any teacher or health care provider	33.5	20.3	26.7	26.2	18.7	22.1
Any family member	52.7	38.7	45.5	32.9	24.3	28.2
Any non-family member	57.1	40.8	48.7	52.8	40.6	46.0

Notes: Totals may exceed 100.0 because multiple responsible are possible. Ns are weighted.

Table 4.4 – Percentage of adolescents, by persons who talked about sex-related matters with adolescents, according to gender and schooling status, 2004 *National Survey of Adolescents (Ghana)*

<i>Current Schooling Status</i>						
Characteristic	Female			Male		
	In-school (N=1543)	Out-of- school (N=450)	Total (N=1993)	In-school (N=1712)	Out-of- school (N=380)	Total (N=2092)
Persons who ever talked to respondent about sex-related matters						
Brother	3.1	4.4	3.4	6.9	7.8	7.1
Sister	11.9	11.9	11.9	3.9	2.9	3.7
Father	13.6	13.8	13.7	11.5	15.2	12.2
Mother	34.5	33.5	34.2	16.3	17.5	16.5
Male friend	5.6	5.8	5.7	21.8	36.0	24.3
Female friend	19.9	25.5	21.2	3.5	6.6	4.0
	In-school (N=1544)	Out-of- school (N=456)	Total (N=2000)	In-school (N=1714)	Out-of- school (N=381)	Total (N=2095)
Any sibling	13.3	14.4	13.5	9.3	10.2	9.5
Any parent	36.0	35.4	35.9	20.0	23.5	20.6
Any friend	20.6	27.2	22.1	22.6	37.8	25.4
Any teacher or health care provider	33.6	14.4	29.2	25.6	13.4	23.4
Any family member	47.1	48.8	47.5	28.1	34.4	29.3
Any non-family member	51.9	51.0	51.7	45.9	53.6	47.3

Notes: Totals may exceed 100.0 because multiple responsible are possible. Ns are weighted.

4.1.a. Puberty. The period of puberty is important to recognize because it ushers in the transition to adulthood. The physical and behavioral changes associated with puberty bring about new dimensions to socialization, sexual and reproductive health as well as social and cultural roles. These changes also heighten adolescents' self-awareness and self-efficacy. The successful transition from childhood to adulthood was traditionally the duty of close family members (Kayongo-Male and Onyango 1984; Kumi-Kyereme et al. 2007), but has progressively become the responsibility of newer stakeholders, including teachers and health care providers. For many adolescents, learning about puberty is now reinforced through formal and informal channels of communication and interaction. Survey data reveal that the mean age for females experiencing their first menstruation was 14.8 years, while males experienced pubertal changes at a mean age of 15.1 (Table 4.5).

Table 4.5 – Percentage distribution of adolescents who experienced menstruation/puberty, according to gender and age group, 2004 National Survey of Adolescents (Ghana)

Characteristic	Female			Male		
	12-14 years (N=955)	15-19 years (N=1237)	Total (N=2192)	12-14 years (N=977)	15-19 years (N=1258)	Total (N=2235)
Experienced menstruation/ male puberty						
No	69.5	9.5	35.7	70.4	12.1	37.6
Yes	30.5	90.5	64.3	29.6	87.9	62.4
Median age at first menstruation/ male puberty changes (in years)	n/a	n/a	14.8	n/a	n/a	15.1

Note: Ns are weighted. Source: Awusabo-Asare et al. (2006, p. 54)

During their interviews, adolescents were asked to describe any pubertal changes they had experienced, their reactions, whether anyone had prepared for these changes, and the content of the information shared with them. Adolescents' narratives about the information they had received converged around a number of themes, depicted in Figure 4.1. As could be anticipated, considerably lower proportions of out-of-school adolescents stated that a teacher or health care provider had ever talked with them. For those who had been to school, the topic of puberty was often addressed during class or school assemblies, likely the result of family life education being introduced in the school curriculum in the mid-1990s (Kumi-Kyereme et al. (2007):

Respondent: Yes, I heard about these changes at school. They said that from age 11, one would see changes in her body such as, pubic hair, development of breasts, and menstruation.

Female, 16 years, in-school, urban

Respondent: Our teacher invited one man to come and speak to us on entertainment day. He talked about how a boy grows and how his body changes. He said with the boys, he gets a beard and the voice breaks, and then begins to have some feelings about sex with the opposite sex.

Male, 14 years, in-school, rural

The significance of the timing of information about pubertal changes was evident in adolescents' narratives. Irrespective of their gender, age group, schooling status, or residence, adolescents who had been informed about puberty before experiencing it were more likely to embrace the changes and to be more confident. These adolescents expressed that the foreknowledge minimized their fear or surprise:

Respondent: Yes, since my mother had already told me, I was not surprised to see my breast appearing.

Female, 16 years, in-school, rural

Respondent: I lived together with matured girls and they talked about these changes [...]. So, when I started experiencing these changes, I knew I was becoming an adult.

Female, 18 years, out-of-school, rural

Interviewer: When were you first told?

Respondent: When I was in primary 6 [...]. It made me prepared towards some of these changes so when it happened I was not surprised.

Male, 16 years, in-school, urban

Conversely, those who were not informed prior to experiencing pubertal changes tended to describe feelings of fear and surprise:

Respondent: The first time I experienced it I was afraid. I did not know what it was so I did not also want to inform my dad. May be he will think I have done something bad to my body.

Female, 15 years, in-school, rural

Respondent: It was useful because a number of my school mates and I did not know about most of the things the man [invited to his school] talked about. I even told him that when I saw mine for the first time I was surprised; and so I think those who had not yet experienced the changes will be better prepared to accept those change and will not be surprised as I did.

Male, 14 years, in-school, rural

The notion of pubertal changes being an expected part of the transition to adulthood was repeatedly conveyed to adolescents. For many, puberty was explained in terms of a normal life experience, becoming an adult and/or mature, but also in terms of the increased risk of getting (someone) pregnant:

Respondent: I asked my mother whether young girls also experience these changes and my mother said I am now an adult and that if I have sex with a man I will become pregnant.

Female, 12 years, out-of-school, rural

Respondent: My friends talked to me when I told them that I saw blood in my pants. They advised me to go and buy pads and use. They also told me that it happens to every woman.

Female, 16 years, out-of-school, urban, street child

Respondent: Mr. A., he said a young man develops beard and hair grows in the armpits. [...] It was useful because as young man, anytime you see those changes in your body it means you are now matured and have to be careful with the opposite sex.

Male, 15 years, in-school, rural

Personal hygiene was another subtheme that emerged in the narratives regarding pubertal changes. Females who participated in the IDIs often stated their mother and/or teacher had introduced them to sanitary pads and their proper use. Discussions also centered on dressing appropriately during their menses:

Respondent: She [mother] told me how to dress whenever I experienced my menses.

Female, 16 years, in-school, urban

Respondent: She [social studies teacher] talked about how to keep ourselves clean, how to keep our environment clean, and how to protect ourselves from such things.

Female, 18 years, in-school, rural

Respondent: My aunt advised me to always keep myself neat and also keep away from girls.

Male, 14 years, out-of-school, urban, street child

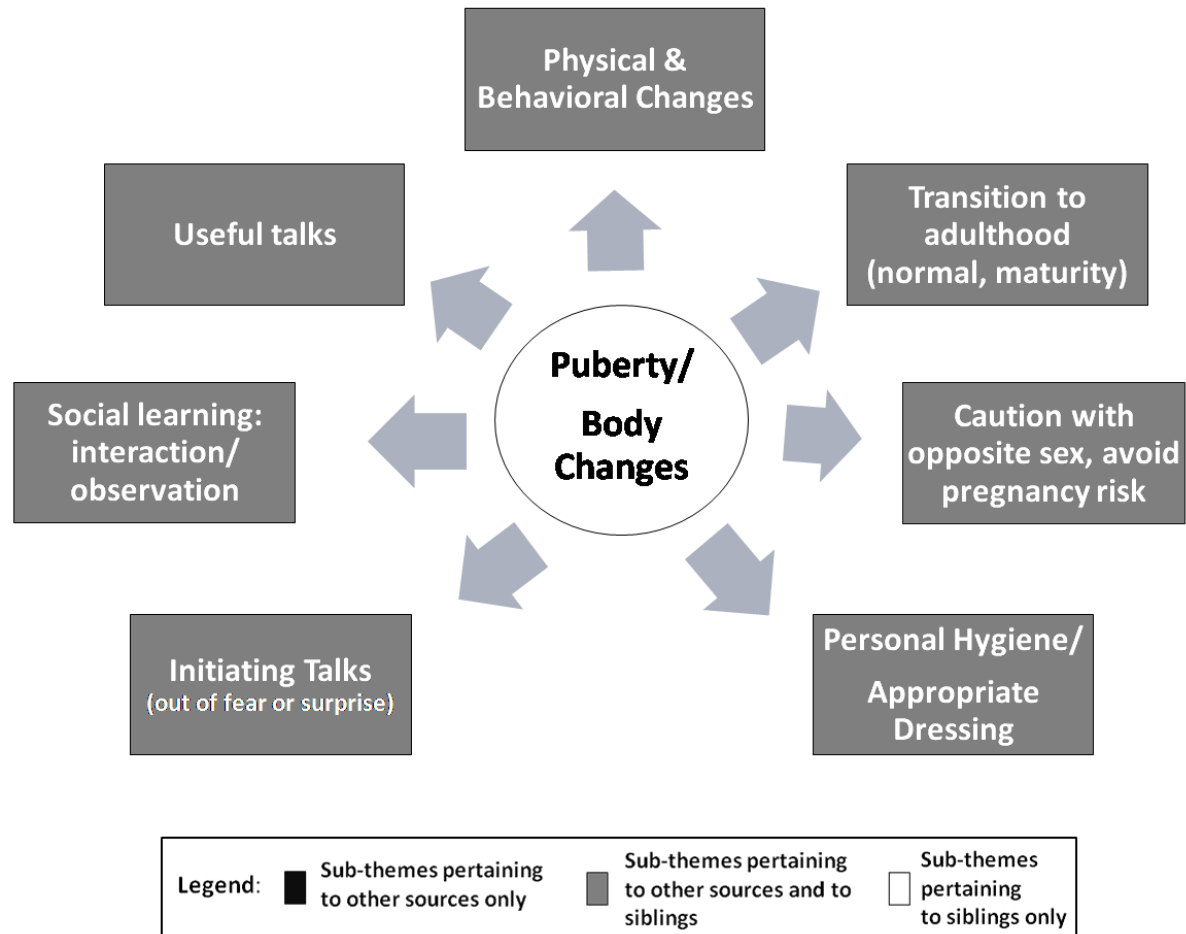


Figure 4.1 – Sub-themes regarding puberty & body changes information

National data showed that communication about sex-related issues was frequent among females and their female friends (not shown). Here, one adolescent sheds light on why females would rely more on their friends:

Respondent: Parents don't like talking much about these things, why I do not know. Most of what I know I learnt from friends. For example, if I am eager to know more about my body and sex, I ask my friends. I also learn a lot from magazines and papers. My friends even had to teach me the right way to place my sanitary pad in my panty.

Female, 19 years, in-school, urban

Almost all adolescents who stated that they had received information about pubertal changes affirmed the usefulness of the talks. For most, this information helped them to appreciate the changes they were experiencing and to be cautious in their behaviors:

Respondent: Yes, I did [find it useful] because she [mother] said that if I play with boys and I take bad friends it won't help me.

Female, 13 years, in-school, urban

Respondent: It was useful because I know that I can now impregnate any girl I have sex with and so I have to be careful.

Male, 15 years, out-of-school, rural

4.1.b. Awareness of romantic and/or sexual relationships. Considering the documented and adverse effects of risky sexual behaviors, including unintended pregnancy and contracting sexually transmitted infections (STIs), gaining insight into the factors that influence adolescents' behaviors and decisions to either enter into or delay romantic and/or sexual relationships is key.

During their interviews, adolescents were asked whether they had ever been in a romantic and/or sexual relationship, ever had a boyfriend/girlfriend, and ever had sexual intercourse. Adolescents who affirmed having been in such relationships were

also asked whether anyone knew about their relationship. Data from the IDIs confirm that not all intimate relationships involved sexual intercourse. Narratives also indicate that friends, parents, and siblings were likely to know about these intimate relationships, although some adolescents kept their relationship hidden. Adolescents expounded on how these persons became aware of their relationship as well as their reactions, including adults seeking proof of commitment, expressing anger, and having no explicit reaction. These sub-themes are illustrated in Figure 4.2.

Adolescents who concealed their relationship did so mainly to avoid the anticipated negative reactions:

Respondent: In our community, when a young man befriends a girl, people will say he is still too young but has started running after girls. So, because of that I decided to keep it from my friends.

Male, 18 years, in-school, rural

Those whose parents knew about the relationship generally expressed anger or disapproval, questioned motives, sought proof of commitment, or demanded termination. This was especially the case for females and those from rural areas:

Interviewer: My parents got angry and called me to find out what the boy wanted and I told them he was interested in me but it did not end there. He was also questioned and he told them he was interested in me and will like to marry me.

Female, 19 years, out-of-school, rural

Respondent: It was my mother who knew about our relationship and she advised me to end my relationship with that girl.

Male, 17 years, out-of-school, rural

Not all parents, however, had a discernible reaction:

Respondent: Yes, his parents and my parents and some friends [knew]. They did not say anything about the relationship.

Female, 17 years, out-of-school, urban

4.1.c. Siblings: puberty information and awareness of relationships. As

Chapter 5 will demonstrate, siblings provided information about pubertal changes similar to that of other sources. Adolescents also reached out to their siblings out of fear/surprise or to seek their support. Others learned about pubertal changes through interactions with their siblings or by observing their siblings' body changes. While some adolescents hid their relationship from all members of the family, some differentiated between the adults in the family and their siblings. Siblings were generally more supportive of adolescents' relationships, using verbal and non-verbal indications. Also addressed in the next chapter are the opportunities presented by adolescent and siblings' overlapping social networks (see Figure 4.2).

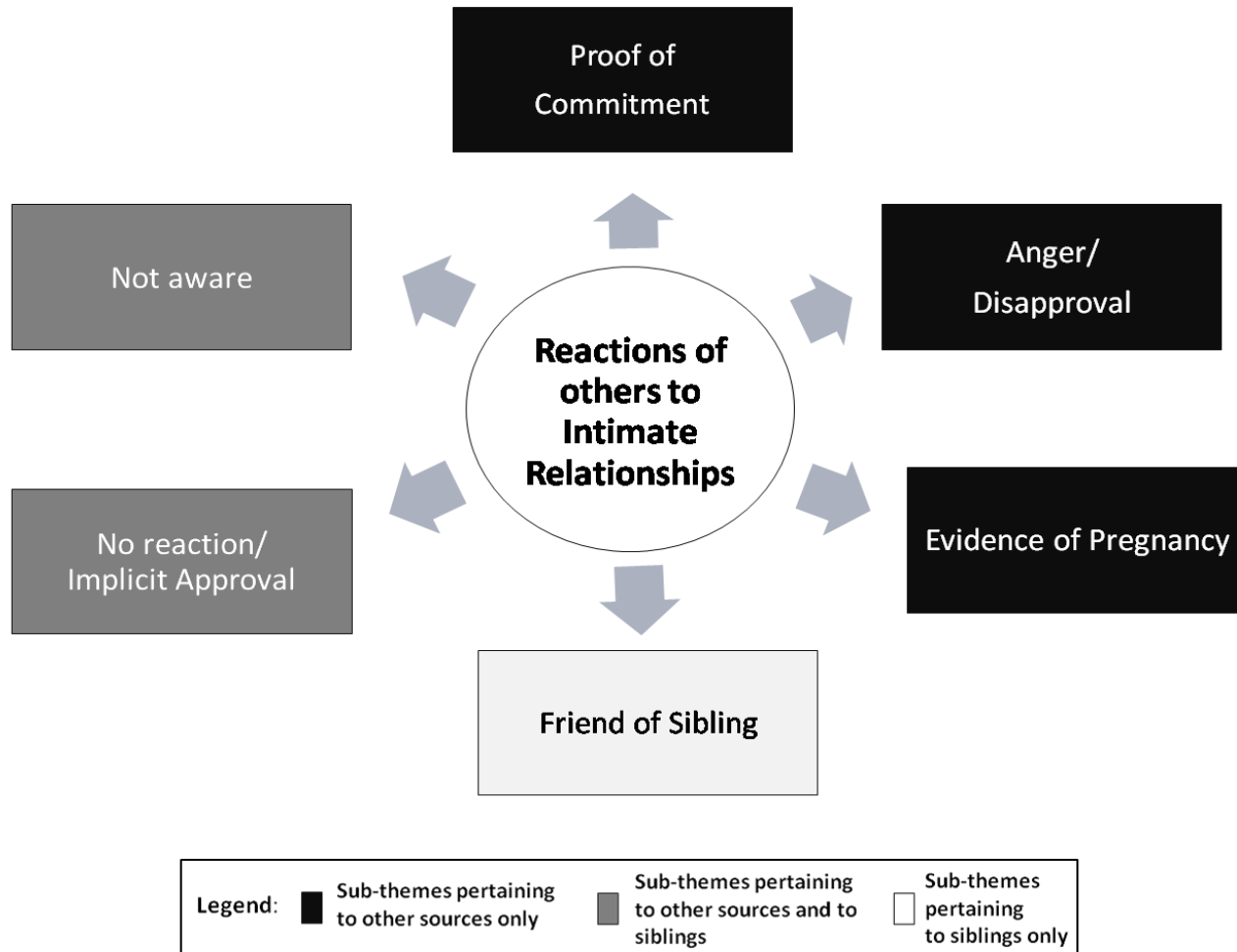


Figure 4.2 – Sub-themes regarding reactions to intimate relationships

4.2. – Pregnancy and HIV/AIDS information

As stated earlier, another way of assessing adolescent sexual and reproductive health was by inquiring about adolescents' knowledge of pregnancy, STIs, and HIV/AIDS as well as ways to prevent these. In the survey, adolescents were asked about their sources of information regarding contraceptives, while in the IDIs, they were asked about pregnancy and its prevention.

4.2.a. Contraceptives and pregnancy prevention. I hypothesized that based on the proliferation of radio and far-reaching impact of health campaigns, adolescents would most frequently report the media as a source of sexual and reproductive health information. Findings from the survey show that at the national level, similar proportions of males and females reported that they had received information about contraceptives from the media, a teacher or health care provider, a friend, a parent, and a sibling – in descending order of importance (see Table 4.1). Of these sources, the media was the most frequently mentioned by males (58.3%) and females (56.8%). The proportion of adolescents who reported that a friend had talked with them about contraceptives was considerably larger than the proportions who said the same about a parent or a sibling. Whereas roughly 21% of males and females mentioned a friend, 7.3% females and 5.3% males mentioned a parent and approximately 4% of all adolescents mentioned a sibling as a source of information about contraceptives. Communication on this topic generally increased with age for males and females (Table 4.6), a trend in the expected direction since older adolescents are more likely than younger adolescents to become more knowledgeable and interested in a matter

that affects their sexual and reproductive health. Urban adolescents were more likely to mention a teacher or health care provider, the media, and a parent as sources of information about contraceptives when compared to rural adolescents (Table 4.7). The latter finding goes contrary to my hypothesis 1c. Higher proportions of adolescents who were out-of-school mentioned a friend and the media as sources of contraceptive information while higher proportions of in-school adolescents named a parent as a source of contraceptives information. As predicted, a higher proportion of in-school adolescents named a teacher or health care provider as a source of information about contraceptives (Table 4.8).

While survey patterns were reflected in the IDIs, adolescents' narratives also revealed the confluence of age, residence, and schooling status. Communication about pregnancy prevention generally increased with age and in-school adolescents were more likely to elaborate on the information they had received from teachers. Younger adolescents were more apt to mention sexual abstinence or condoms, while older adolescents mentioned a broader range of methods or provided greater detail in the information they had received:

Respondent: It was the teachers who taught us. We have to use condom.
Male, 14 years, in-school, urban

Respondent: They [teachers] talked about family planning, the use of contraceptives, spacing births, and planning an ideal family size.
Female, 15 years, in-school, rural

Respondent: She [nurse] talked about family planning methods such as condom, injectables, pills, staying virgin until marriage, loop, and others.
Female, 18 years, out-of-school, urban, street child

Respondent: Our teacher. He talked about how to prevent pregnancy by either abstaining from sex or using condoms and the effects of becoming pregnant as a young girl.
Male, 17 years, in-school, rural

Narratives revealed an interesting pattern among females whereby those who were older, in school, and from urban and rural areas tended to focus on the potential consequences of early pregnancy:

Respondent: The medical doctors, my parents, and the teachers talked about the effects of early sexual intercourse on teenagers. Some of the issues they mentioned were pregnancy, diseases especially HIV/AIDS, and dropping out of school.

Female, 18 years, in-school, rural

Respondent: Teenage pregnancy can lead to school drop outs, meaning you will not get to the target you have set for yourself. Again your parents will not be happy with you and may leave you alone. Also, this group really helped me to say 'No' to guys.

Female, 18 years, in-school, urban

Table 4.6 – Adolescents who know of at least one contraceptive method, by used sources of information for methods, according to gender and age group, 2004 National Survey of Adolescents (Ghana)

Characteristic	Age Group					
	Female			Male		
Source of information about contraceptives	12-14 (N=807)	15-19 (N=1164)	Total (N=1971)	12-14 (N=825)	15-19 (N=1203)	Total (N=2028)
Brother	0.9	1.8	1.4	4.4	3.7	4.0
Sister	3.0	4.8	4.0	1.2	0.9	1.0
Father	2.1	2.2	2.1	3.9	3.3	3.5
Mother	7.1	8.5	8.0	3.7	5.2	4.5
Male friend	3.7	7.6	6.0	17.9	26.4	4.7
Female friend	19.0	23.9	21.9	2.6	6.1	22.9
	12-14 (N=961)	15-19 (N=1234)	Total (N=2195)	12-14 (N=981)	15-19 (N=1254)	Total (N=2235)
Any sibling	2.8	5.3	4.2	4.2	3.8	4.0
Any parent	6.3	8.2	7.3	4.7	5.8	5.3
Any friend	16.7	24.0	20.8	15.7	25.9	21.4
Any teacher or health care provider	36.5	52.6	45.6	41.7	56.5	50.0
Any mass media	50.3	61.9	56.8	51.5	63.6	58.3

Notes: Totals may exceed 100.0 because multiple responsible are possible. Ns are weighted.

Table 4.7 – Adolescents who know of at least one contraceptive method, by used sources of information for methods, according to gender and residential location, 2004 National Survey of Adolescents (Ghana)

Characteristic	Residence					
	Female			Male		
	Urban (N=1027)	Rural (N=944)	Total (N=1971)	Urban (N=958)	Rural (N=1069)	Total (N=2027)
Brother	1.6	1.2	1.4	3.0	4.9	4.0
Sister	5.0	3.0	4.0	0.9	1.1	1.0
Father	2.9	1.2	2.1	4.5	2.7	3.5
Mother	10.3	5.4	8.0	6.0	3.2	4.5
Male friend	7.0	4.9	6.0	20.9	24.8	22.9
Female friend	21.9	21.9	21.9	6.7	3.0	4.7
	Urban (N=1072)	Rural (N=1123)	Total (N=2195)	Urban (N=997)	Rural (N=1238)	Total (N=2235)
Any sibling	5.4	3.1	4.2	3.3	4.6	4.0
Any parent	10.0	4.8	7.3	7.1	3.9	5.3
Any friend	21.7	20.0	20.8	20.9	21.8	21.4
Any teacher or health care provider	53.6	38.0	45.6	59.7	42.2	50.0
Any mass media	65.6	48.5	56.8	64.1	53.6	58.3

Notes: Totals may exceed 100.0 because multiple responsible are possible. Ns are weighted.

Table 4.8 – Adolescents who know of at least one contraceptive method, by used sources of information for methods, according to gender and schooling status, 2004 National Survey of Adolescents (Ghana)

<i>Current Schooling Status</i>						
Characteristic	Female			Male		
	In-school (N=1397)	Out-of- school (N=432)	Total (N=1829)	In-school (N=1562)	Out-of- school (N=354)	Total (N=1916)
Brother	1.2	1.7	1.3	3.4	5.6	3.8
Sister	3.8	4.6	4.0	1.2	0.2	1.0
Father	2.4	1.4	2.2	3.7	3.2	3.6
Mother	8.7	6.3	8.2	5.0	4.0	4.8
Male friend	5.4	8.5	6.1	20.3	30.4	22.1
Female friend	20.8	23.1	21.3	4.4	5.4	4.6
	In-school (N=1544)	Out-of- school (N=456)	Total (N=2000)	In-school (N=1714)	Out-of- school (N=381)	Total (N=2095)
Any sibling	4.0	4.6	4.1	3.6	5.2	3.9
Any parent	8.2	6.0	7.7	5.8	4.5	5.6
Any friend	19.6	24.5	20.7	19.2	28.4	20.9
Any teacher or health care provider	51.4	42.3	49.3	54.9	45.2	53.1
Any mass media	57.4	64.4	59.0	57.9	65.8	59.4

Notes: Totals may exceed 100.0 because multiple responsible are possible. Ns are weighted.

4.2.b. STIs, HIV, AIDS and prevention. Accurate knowledge of STIs and AIDS as well as their prevention can lead to adopting positive behaviors that will help to reduce incidence, prevalence, morbidity, and mortality in the general population. Karim et al. (2003) assert that the behaviors of adolescents and young adults play a crucial role in the course of an HIV epidemic (Karim et al. 2003). Bankole et al. (2007) also stress the importance of protective behaviors, particularly in the absence of a cure for HIV or AIDS.

The national HIV prevalence in Ghana has fluctuated over time, although it remains below 3% in the general population. However, sentinel data collected in antenatal clinics show that females are disproportionately affected by HIV and AIDS (UNAIDS 2010; Ghana AIDS Commission 2010). In many parts of Africa, campaigns aimed at reducing the incidence of HIV as well as sensitizing the general population about its potential harmful consequences become popular in the early 1990s. This period coincided with Ghana's first case of HIV in 1986 (Anarfi 1995). In Ghana, the dissemination of HIV/AIDS information to the general public and to youth in particular has undergone at least four distinct phases since the 1980s (Awusabo-Asare 1993). The first phase was characterized by mass media campaigns, followed by a phase that combined mass media campaigns with community activities. Information was then provided in schools and through faith-based groups, with continued mass media campaigns. These campaigns adopted the catchy 'ABC' slogan which stands for 'Abstain, Be faithful, and Use a Condom'. For youth, the campaign messages centered on sexual abstinence before marriage and led to the formation of virgin clubs in schools and religious institutions (Kumi-Kyereme et al. 2007). Adolescents who

participated in the IDIs recalled being told to abstain from or delay sexual intercourse until marriage as a way to avoid HIV infection (and early pregnancy). Unlike parents and other adults who stressed sexual abstinence, teachers and health care providers were more likely to discuss other ways to prevent HIV/AIDS and pregnancy:

Respondent: She [mother] said I should not have sexual intercourse before marriage.

Female, 14 years, out-of-school, urban

Respondent: She [nurse] taught us how to use condoms and also advised us to keep to only one partner.

Male, 18 years, in-school, rural

The fourth phase involved a focus on individuals and counseling (Awusabo-Asare 1993). This focus on individuals also involved media campaigns to sensitize the public towards people living with HIV/AIDS (PLWAs), which a number of adolescents noted:

Respondent: On the T.V and from some FM stations. They talked about how to live with people living with HIV/AIDS. This includes talking to them, eat and drink together with them but avoid any act that leads to his or her blood coming into contact with yours.

Female, 18 years, out-of-school, urban

The effect of Ghana's multi-pronged effort was best captured by one adolescent's remark:

Interviewer: Are there people you feel you can go to for talk about HIV/AIDS?

Respondent: No, no one because AIDS is preached everywhere, even an uneducated child knows about HIV/AIDS.

Female, 18 years, out-of-school, urban

Again, comparable the proportions of males and females who were surveyed mentioned the media, a teacher or health care provider, a friend, a parent, and a sibling as sources of information about STIs/HIV/AIDS information (by decreasing order of importance). Although the media was again the most frequently cited source, greater proportions of adolescents turned to the media for information about STIs or HIV/AIDS than they did about contraceptives, as indicated by 80.4% of males and 73.0% of females who did (Table 4.1). About 3 in 5 adolescents mentioned a teacher or health care provider and 1 in 5 mentioned a friend as sources of STI/HIV/AIDS information. Less than 15% of adolescents reported that a parent had communicated to them about this topic and three times fewer indicated that a sibling had done so.

Similar to the communication about contraceptive information at the national level, communication about STIs/HIV/AIDS generally increased with age (Table 4.9) and was greater among adolescents from urban areas (Table 4.10). A higher proportion of out-of-school adolescents relied on the media for information about STIs/HIV/AIDS than in-school adolescents (Table 4.11). Schooling status and gender also showed variations whereby a higher proportion of out-of-school males mentioned a friend as a source of information compared to in-school males, whereas in-school and out-of-school female were equally likely to mention a friend (Table 4.11). In-school and out-of-school males were equally likely to report that a parent had talked to them about STIs or HIV/AIDS versus a higher proportion of out-of-school females who cited a parent as a source when compared to in-school females. As expected, fewer out-of-school adolescents mentioned a teacher or health care provider as a source of STI or HIV/AIDS information (Table 4.11).

Table 4.9 – Percentage of adolescents who know of any STIs or HIV/AIDS by used sources of information on STIs/HIV/AIDS, according to gender and age group, 2004 National Survey of Adolescents (Ghana)

Characteristic	Age Group					
	Female			Male		
Source of information about STIs/HIV/AIDS	12-14 (N=961)	15-19 (N=1234)	Total (N=2195)	12-14 (N=981)	15-19 (N=1254)	Total (N=2235)
Brother	2.1	2.6	2.4	4.0	4.8	4.4
Sister	3.6	4.5	4.1	1.8	1.4	1.6
Father	5.3	5.7	5.5	6.6	7.4	7.1
Mother	12.4	14.0	13.3	7.5	8.8	8.2
Male friend	4.0	6.8	5.6	16.2	25.8	21.6
Female friend	15.2	19.2	17.4	2.1	7.5	5.1
Any sibling	4.6	5.4	5.0	4.9	5.5	5.2
Any parent	12.8	14.5	13.8	9.9	10.7	10.4
Any friend	15.3	19.5	17.6	16.4	26.4	22.0
Any teacher or health care provider	58.8	65.6	62.6	54.9	65.9	61.1
Any mass media	67.4	77.3	73.0	75.9	83.9	80.4

Notes: STIs = sexually transmitted infections.

Totals may exceed 100.0 because multiple responsible are possible. Ns are weighted.

Table 4.10 – Percentage of adolescents who know of any STIs or HIV/AIDS by used sources of information on STIs/HIV/AIDS, according to gender and residential location, 2004 National Survey of Adolescents (Ghana)

Characteristic	<i>Residence</i>					
	Female			Male		
Source of information about STIs/HIV/AIDS	Urban (N=1072)	Rural (N=1123)	Total (N=2195)	Urban (N=997)	Rural (N=1238)	Total (N=2235)
Brother	2.4	2.3	2.4	3.7	5.1	4.4
Sister	5.3	2.9	4.1	2.1	1.2	1.6
Father	7.2	3.9	5.5	9.0	5.6	7.1
Mother	16.9	9.9	13.3	11.2	5.8	8.2
Male friend	8.1	3.1	5.6	23.9	19.7	21.6
Female friend	20.3	14.7	17.4	7.5	3.2	5.1
Any sibling	6.0	4.2	5.0	4.7	5.7	5.2
Any parent	17.4	10.3	13.8	13.2	8.1	10.4
Any friend	20.4	15.0	17.6	24.5	19.9	22.0
Any teacher or health care provider	71.5	54.1	62.6	70.1	53.9	61.1
Any mass media	78.6	67.6	73.0	83.1	78.2	80.4

Notes: STIs = sexually transmitted infections.

Totals may exceed 100.0 because multiple responsible are possible. Ns are weighted.

Table 4.11– Percentage of adolescents who know of any STIs or HIV/AIDS by used sources of information on STIs/HIV/AIDS, according to gender and schooling status, 2004 National Survey of Adolescents (Ghana)

<i>Current Schooling Status</i>						
Characteristic	Female			Male		
Source of information about STIs/HIV/AIDS	In-school (N=1544)	Out-of-school (N=456)	Total (N=2000)	In-school (N=1714)	Out-of-school (N=381)	Total (N=2095)
Brother	2.4	2.2	2.4	3.7	4.8	3.9
Sister	4.3	3.7	4.2	1.7	1.5	1.7
Father	6.4	3.6	5.8	6.9	7.7	7.1
Mother	14.8	11.7	14.1	8.4	9.0	8.5
Male friend	5.4	7.0	5.8	19.9	26.1	21.0
Female friend	16.8	18.5	17.2	4.5	7.3	5.0
Any sibling	5.1	4.9	5.0	4.5	5.7	4.7
Any parent	15.3	12.2	14.6	10.5	10.8	10.5
Any friend	16.9	18.9	17.4	20.2	27.1	21.5
Any teacher or health care provider	71.6	54.6	67.8	68.1	49.8	64.8
Any mass media	73.0	81.9	75.1	79.9	87.7	81.3

Notes: STIs = sexually transmitted infections.

Totals may exceed 100.0 because multiple responsible are possible. Ns are weighted.

Adolescents' narratives highlighted striking similarities in the pregnancy, STI, and HIV/AIDS information that they received (Figure 4.3), likely because these topics were often discussed together:

Respondent: They [religious group] dramatized the causes and effects of HIV/AIDS and early pregnancy.
Female, 15 years, in-school, rural

Interviewer: Were you told a similar or different thing about preventing pregnancy at school?

Respondent: Our teacher treated it alongside with AIDS.
Male, 19 years, in-school, urban

Adolescents who were in school tended to more readily recall facts about HIV/AIDS:

Respondent: They [school peer educators] talked about how AIDS is spreading and that 200 Ghanaians are infected daily, especially we the girls.
Female, 18 years, in-school, rural

Respondent: There are people from Walewale Secondary Technical (WASATEC) who normally come to our school to talk to us. They said AIDS cannot be cured but can be prevented. They also told us that before sex we should put on a condom. They said we should not share blades with other people because we can easily contract AIDS through that habit.
Male, 14 years, in-school, rural

Adolescents who were in school also were also more apt to discuss the potentially harmful consequences of contracting HIV/AIDS and of early pregnancy:

Respondent: She [mother] said I should avoid early sex if I want to complete my education successfully.
Female, 18 years, in-school, rural

Respondent: If you are a teenager and become pregnant, you may face several problems. If you are a student you will be a drop-out, you will be taking care of a baby at a level you have not reached. You may not also be able to take good care of the child and the child may die earlier. You can also contract sexually transmitted diseases.
Male, 18 years, in-school, rural

For all adolescents, though, communication about pregnancy and HIV/AIDS was laced with messages concerning behaviors towards the opposite sex and choosing the right company:

Respondent: *[Mum and my teacher] said I shouldn't be with guys because some of them are bad, and that I should concentrate on my schooling and my books, and go to the right places with the right people.*

Female, 13 years, in-school, urban

Respondent: *My friends and my teachers told me that I should not follow bad boys.*

Male, 17 years, out-of-school, urban, street child

When asked about the usefulness of the pregnancy prevention information they had received, the majority of adolescents recounted the benefits of the new knowledge:

Respondent: *They [community health event] said if one does not want to become pregnant, one should go in for pills or condoms to prevent pregnancy.*

Interviewer: *Did this talk help you in any way?*

Respondent: *Yes. That was how I got to know the pills and have been using them since.*

Female, 19 years, out-of-school, rural

Respondent: *It has allowed me to practice safe sex.*

Male, 17 years, out-of-school, urban, refugee

Respondent: *It was useful because we thought the condom was only meant for protecting HIV/AIDS but we now know that it can be used to prevent pregnancy.*

Male, 18 years, out-of-school, rural

Still, some females explained why they had not benefitted from the information:

Respondent: *They were [useful], but it was after I'd given birth.*

Female, 18 years, out-of-school, urban

Respondent: *[Some mates of mine] spoke of some pills that can be taken to prevent pregnancy. I did not [find the talks useful]. Because whether you use drugs or not you can get pregnant.*

Female, 19 years, urban, out-of-school

Even though higher proportions of urban adolescents indicated that someone had talked with them about STIs/HIV/AIDS at the national level (Table 4.10), rural adolescents who participated in the IDIs were more likely to provide concrete reasons for the usefulness of the information:

Respondent: I think this way because I have witnessed the sad end of some HIV/AIDS patients. So when I am going to wed, I will have to go and have an HIV/AIDS test with my partner. He may have the disease or I may have the disease myself.

Female, 18 years, out-of-school, rural

Respondent: Yes, it was useful because I had the intention of indulging in premarital sex but now I don't think about that again.

Male, 15 years, out-of-school, rural

Respondent: It will help me to maintain only one partner.

Male, 18 years, in-school, rural

4.2.c. Siblings: contraceptives, pregnancy, STI, and HIV/AIDS information.

Despite the smaller proportions of adolescents reporting siblings as sources of pregnancy and STI/HIV/AIDS information in both the survey and IDIs, narratives demonstrate that siblings provided the same kind of information about pregnancy and HIV/AIDS as other sources. Chapter 5 elaborates on how siblings cautioned adolescents about their interactions with the opposite sex and advised against pregnancy. Siblings, however, did not explicitly talk about being faithful, using condoms or other contraceptives, or supporting PLWAs (Figure 4.3).

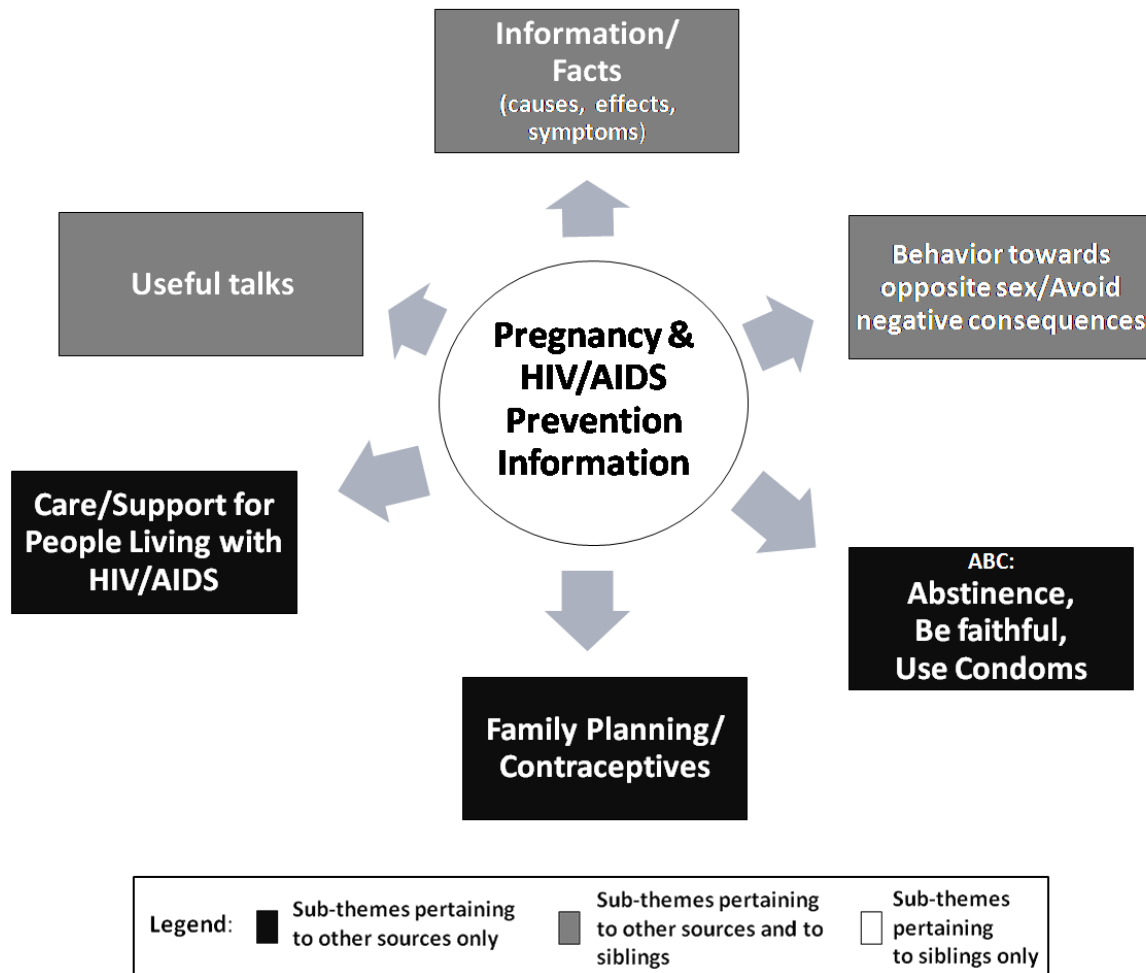


Figure 4.3 – Sub-themes regarding pregnancy & HIV/AIDS prevention information

4.3. – Preferred and trusted sources: pregnancy and STI/HIV/AIDS prevention

In all three data sources, adolescents were asked about their preferred sources of information of contraceptives, pregnancy prevention, and STI/HIV/AIDS. Only in the IDIs were adolescents asked about their trusted sources regarding this information.

4.3.a. Preferred sources of information. Smaller proportions of adolescents reported their preference for sources of information. By decreasing order of proportion, both males and females mentioned a teacher or health care provider, the media, a parent, friend, and sibling as preferred sources of information for contraceptives as well as STI/HIV/AIDS information (Table 4.1). Males were more likely to report these preferred sources than females, except for the proportion of males that mentioned a parent (Table 4.1). Because adolescents were not asked to elaborate on their preferences, no sub-themes emerged in adolescents' narratives. Instead, adolescents were asked to discuss their trusted sources and their reasons, summarized in Figure 4.4 and discussed in the next section.

4.3.b. Trusted sources of information. Mirroring survey data regarding preferred sources, a sizeable proportion of adolescents who were interviewed cited teachers, health care providers, and parents as trusted sources of pregnancy and STIs/HIV/AIDS information. Adolescents' narratives convey that for many, their preferred sources were not necessarily their trusted sources, and vice versa. Four principal themes emerged among the reasons for trust (Figure 4.4). Adolescents trusted sources that they perceived to be knowledgeable and those older than them:

Interviewer: So, whose information do you trust most?
Respondent: All [teachers and my parents] because they are all older than me.
Female, 16 years, in-school, urban

Interviewer: Among your friends and the teachers, whose information do you trust?
Respondent: My teachers [who] read more books about HIV/AIDS and can advise me as to how to prevent myself from AIDS.
Male, 16 years, in-school, rural

Interviewer: Among your former teacher and your Arabic teacher, whose information do you really want about preventing pregnancy?
Respondent: My teacher. He has been reading much literature concerning HIV/AIDS and pregnancy but my Arabic teacher is only concerned with the spiritual aspect of life.
Male, 19 years, out-of-school, rural

Trust of health care providers and teachers was based on their technical expertise and professional training:

Respondent: The nurses, teachers, and friends.
Interviewer: Among these people whose information do you trust most?
Respondent: The nurses. Because they have been trained to deliver health services to the general public.
Female, 15 years, in-school, rural

Interviewer: Of the teacher and the midwife who spoke on pregnancy prevention, whose information do you trust most?
Respondent: I trust the midwife's information. [...]. I trust my teacher but the midwife is trained to handle such situations.
Male, 14 years, in-school, urban

Personal experience with pregnancy or living with HIV/AIDS were also strong justifications for trust:

Interviewer: Are there people you can talk to about how to prevent pregnancy?
Respondent: Yes, my friend, the seminarian at my Church, and my parents.
Interviewer: Whose information would you trust most about preventing pregnancy?

Respondent: My parents. They are more experienced and know people who have ever experienced pregnancy related problems before.
Male, 14 years, in-school, rural

Respondent: [I trust] the man who was infected because he had the disease and knows what the disease is all about. [H]e does not want us to also contract the disease as he did. He told us the reason why it is not good to have sex at a tender age with a partner.
Male, 18 years, in-school, rural

The nature of their relationship with other adults equally served as a reason for trust:

Interviewer: Are there people you think you can go to for talk about preventing pregnancy?

Respondent: The pastors, my mother and my father.

Interviewer: Whose information do you trust most?

Respondent: My parents. Because they love me so much that they won't tell me lies.

Female, 15 years, in-school, rural

Respondent: I trust Mr. [Name] information because I'm free with him.

Male, 14 years, out-of-school, rural

For other adolescents, there was no specific reason to delineate preferences, given the similarity in information they had received from multiple sources:

Interviewer: What did he [teacher] talk about?

Respondent: It all centered on how to stay away from sex, as we are still young.

Respondent: As for the first time I cannot remember, but even just yesterday some friends I met discussed these issues with me.

Interviewer: Whose information do you trust most about AIDS and preventing it?

Respondent: The information given is all the same, there is no difference so I trust and believe in all.

Male, 18 years, in-school, urban

4.3.c. Siblings: preferred and trusted sources. Adolescents preferred and trusted their siblings for similar reasons given about other sources (Figure 4.4).

Chapter 5 will show that preference and trust were also based on siblings' knowledge, age, personal experience, professional training, and the nature of their relationship.

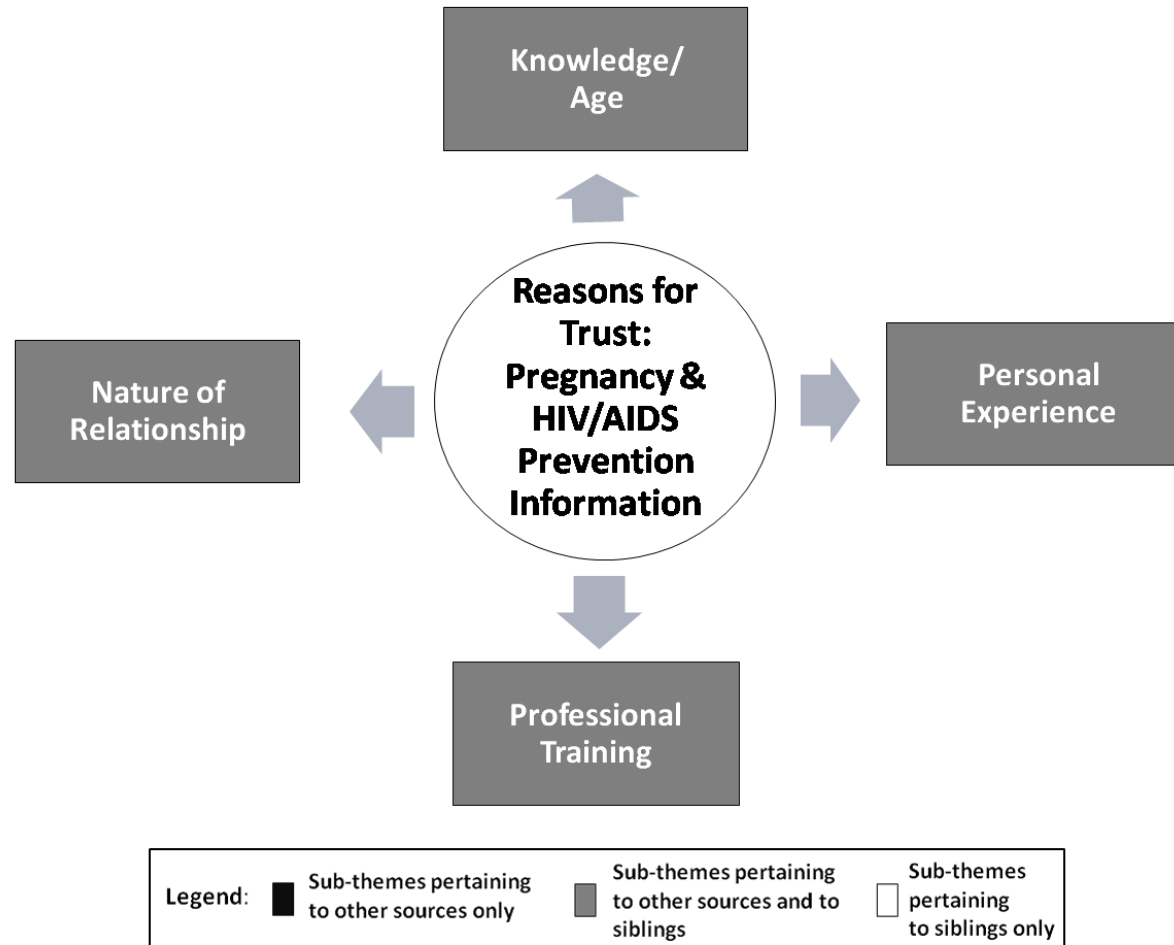


Figure 4.4 – Sub-themes regarding reasons for trusting pregnancy & HIV/AIDS prevention information

4.4. – Encouragement to abstain from sex

Although encouraging adolescents to abstain from sex may be regarded as a sex-related matter, this topic was treated separately in the IDIs and survey. It is presumed that reinforcing expected sexual and reproductive health behaviors will positively affect adolescents in their decision-making. As stated earlier, the notion of sexual abstinence until marriage among youth gained traction through HIV/AIDS campaigns and led to the formation of youth groups promoting this objective.

Among those surveyed, parents were the most frequently cited as having encouraged adolescents to abstain from sex, although the proportion was greater among females (65.5%) than males (56.8%) (Table 4.1). A slightly higher proportion of males reported that a friend had encouraged them (37.4%) compared to females (31.2%). However, a higher proportion of females reported that a sibling had encouraged them to abstain from sex (22.0%) than males (14.4%).

For both males and females, the proportion of adolescents who reported receiving encouragement from a parent decreased with age, in contrast with the proportion of adolescents who reported that a parent had talked to them about sex-related matters increasing with age (Table 4.12). While it would be expected that encouragement from parents to abstain would increase with age to reinforce the idea of waiting until marriage, it is possible that parents convey the message using less strict language with older adolescents. However, encouragement by parents did not differ by residence, for both males and females (Table 4.13). By schooling status, more in-school females reported encouragement from a parent, but there was no

difference between in-school and out-of-school males (Table 4.14). The proportions of adolescents who mentioned that a friend had encouraged them increased with age, but were smaller among rural adolescents and greater among out-of-school adolescents (Tables 4.12, 4.13, and 4.14). Encouragement from siblings remained relatively constant among females across age groups, residence, and schooling status. For males, encouragement from a sibling to abstain from sex was higher among those who were older, from urban areas, and out of school (Tables 4.12, 4.13, and 4.14).

The theme of postponing sexual debut and delaying sexual intercourse until marriage was also prominent in adolescents' narratives. Adolescents heard this message from multiple sources and angles, namely during discussions about puberty, HIV/AIDS, and pregnancy (see example in 'Inside Look 5.2'). During their interviews, adolescents – particularly those who indicated that they had never been involved in a romantic or sexual relationship – described how they had been strongly encouraged to abstain from sex. Consistent with national trends, encouragement mainly came from a parent:

Respondent: She [mother] said that, some guys are wild so I shouldn't sleep with any guy. My teacher also advised me not to sleep with anybody.
Female, 13 years, in-school, urban

Respondent: Yes, my parents always advise me against courting girls.
Male, 15 years, out-of-school, urban

Respondent: It is a constant advice from my mother.
Male, 17 years, in-school, urban

Successfully completing one's education and preserving one's self-worth were also among the reasons given to adolescents to abstain from sex (Figure 4.5):

Interviewer: What did she [mother] say?

Respondent: She said I should avoid early sex if I want to complete my education successfully.

Female, 18 years, rural, in-school

Respondent: She [unspecified woman] said that it's not good for a young girl to have sexual intercourse, because she will be degrading herself.

Female, 19 years, out-of-school, urban

4.4. a. Internalizing the message of sexual abstinence. The reasons offered by adolescents themselves for not initiating a romantic or sexual relationship suggest that the messages they received from concurrent sources influenced their knowledge, attitudes, and behaviors. For the most part, adolescents who were in-school emphasized the value of completing one's education and expressed their fear of dropping out of school due to pregnancy. Other compelling reasons expressed were the fear of contracting STIs, not being old or mature enough, and religious convictions. Specifically, females (irrespective of other socio-demographic characteristics) raised concerns regarding their age and the fear of pregnancy:

Respondent: When a girl does that, she becomes pregnant and the man denies the pregnancy and destroys the girl's future.

Female, 14 years, in-school, urban

Respondent: Yes. My father has warned me against that, and my religion also does not permit that. I will wait till marriage.

Female, 15 years, out-of-school, urban

Respondent: I do not want to have a boyfriend now because I am still young, and more to the point, if I have a boyfriend and become pregnant I may drop out of school or I may become infected with HIV/AIDS, gonorrhea and others which may affect my life.

Female, 18 years, in-school, rural

Males, on the other hand, were more likely to emphasize maturity and financial security:

Respondent: I am not mature to go in for a girlfriend and should I have one, I cannot give her money because I am not working.
Male, 14 years, in-school, rural

Respondent: Because I am not of age to have sex. [...] I am also afraid I might impregnate a girl or contract the bad illness called HIV/AIDS.
Male, 14 years, in-school, urban

Additionally, out-of-school males in rural areas tended to define their time frame for sexual debut around maturity and economic stability:

Respondent: After completing school and getting a good job, I can then go in for a girlfriend.
Male2, 14 years, in-school, rural

Interviewer: When do you expect to have your first girlfriend?
Respondent: When I'm fully grown and know that I can now take care of a girl.
Male, 15 years, out-of-school, rural

Interviewer: When do you expect to have sexual intercourse for the first time?
Respondent: That is when I am about 20 years old.
Interviewer: Why then?
Respondent: By then I will have my own room and also my own farm.
Male, 15 years, out-of-school, rural

4.4. b. Siblings: encouraging sexual abstinence. Chapter 5 will detail how siblings emphasized sexual abstinence before marriage as well as avoiding relations with the opposite sex to minimize the risk of pregnancy. The chapter will also show that different from the other sources, siblings articulated sexual abstinence in terms of delayed gratification. Furthermore, siblings used their experiences as personal examples to drive home the message of sexual abstinence (see Figure 4.5).

Table 4.12 – Percentage distribution of adolescents who never had sexual intercourse by encouragement received, according to gender and age group, 2004 National Survey of Adolescents (Ghana)

Characteristic	Age Group					
	Female			Male		
	12-14 (N=371)	15-19 (N=505)	Total (N=876)	12-14 (N=295)	15-19 (N=542)	Total (N=837)
Brother	8.6	10.2	9.5	10.8	12.4	11.9
Sister	18.6	19.5	19.1	5.8	5.7	5.6
Father	31.5	28.7	29.9	45.9	37.5	40.5
Mother	70.1	58.0	63.1	52.4	44.6	47.4
Male friend	5.9	16.1	11.8	25.1	42.5	36.3
Female friend	20.8	28.6	25.3	2.4	8.2	6.1
Any sibling	21.6	22.4	22.0	13.5	14.9	14.4
Any parent	71.7	61.0	65.5	65.0	52.3	56.8
Any friend	23.5	37.0	31.2	25.3	43.8	37.4

Notes: Totals may exceed 100.0 because multiple responsible are possible. Ns are weighted.

Table 4.13 – Percentage distribution of adolescents who never had sexual intercourse by encouragement received, according to gender and residential location, 2004 National Survey of Adolescents (Ghana)

Characteristic	Residence					
	Female			Male		
	Urban (N=470)	Rural (N=407)	Total (N=877)	Urban (N=450)	Rural (N=388)	Total (N=838)
Brother	10.4	8.4	9.5	14.0	9.4	11.9
Sister	18.9	19.3	19.1	8.4	2.3	5.6
Father	30.0	29.8	29.9	39.0	42.2	40.5
Mother	62.7	63.6	63.1	48.7	45.8	47.4
Male friend	13.4	9.9	11.8	40.9	31.0	36.3
Female friend	30.9	19.1	25.3	7.3	4.4	6.1
Any sibling	21.7	22.4	22.0	17.6	10.8	14.4
Any parent	65.3	65.6	65.5	55.8	58.0	56.8
Any friend	36.0	25.6	31.2	41.6	32.5	37.4

Notes: Totals may exceed 100.0 because multiple responsible are possible. Ns are weighted.

Table 4.14 – Percentage distribution of adolescents who never had sexual intercourse by encouragement received, according to gender and schooling status, 2004 National Survey of Adolescents (Ghana)

<i>Current Schooling Status</i>						
Characteristic	Female			Male		
Persons who encouraged sexual abstinence	In-school (N=681)	Out-of-school (N=158)	Total (N=839)	In-school (N=671)	Out-of-school (N=150)	Total (N=821)
Brother	9.4	9.5	9.4	11.4	12.0	11.5
Sister	19.1	20.3	19.4	5.6	6.0	5.6
Father	30.0	30.4	30.1	40.1	44.0	40.8
Mother	65.7	57.0	63.9	47.6	49.3	47.9
Male friend	10.3	17.7	11.7	35.0	39.3	35.7
Female friend	25.8	24.1	25.4	5.6	8.7	6.1
Any sibling	21.7	23.4	22.1	13.7	16.0	14.0
Any parent	67.8	60.1	66.4	57.6	56.7	57.4
Any friend	30.4	35.4	31.3	35.8	40.7	36.7

Notes: Totals may exceed 100.0 because multiple responsible are possible. Ns are weighted

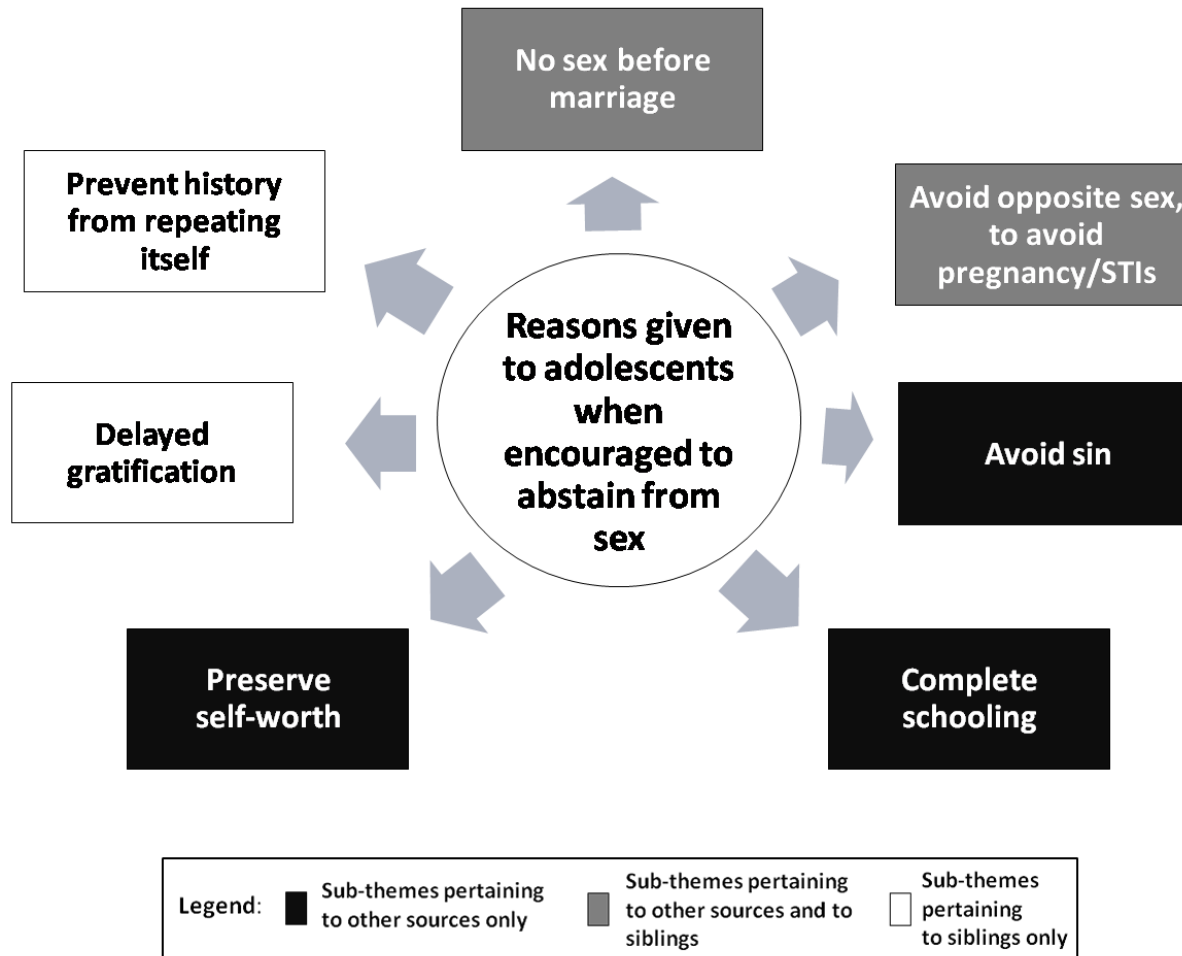


Figure 4.5 – Sub-themes regarding reasons given to abstain from sex

4.5. – Healthcare-seeking behavior

Along with the physical and behavioral changes experienced during adolescence come a heightened sense of the need for privacy and confidentiality. It is important to know how adolescents respond to the health problems they face and whom they inform or confide in. Of particular interest is their health-seeking behavior regarding sexual and reproductive health problems, which in Ghana are often stigmatized and associated with promiscuity (Bleek 1981; Kumi-Kyereme et al. 2007). Affordability is also a serious issue in health delivery in Ghana. Among those surveyed, approximately one-third of males and females indicated an inability to pay for medical services (Awusabo-Asare et al. 2006). Given youth's increased vulnerabilities to contracting STIs and their potentially harmful outcomes, it is vital to recognize the barriers that adolescents face in accessing health care. It is equally necessary to examine whether adolescents benefit from services tailored to them (e.g. youth-friendly clinics). Even among adolescents who have not experienced such problems, it is still necessary to understand the steps they intend to take and whom they intend to seek help from or confide in. Kumi-Kyereme et al. (2007) assert that empowering youth in their health-seeking behaviors is an important public good, as is mobilizing families and communities to assist them in the process.

During their interviews, adolescents were asked to recall the last time they needed health care and the nature of the health problem they had experienced. Almost all adolescents mentioned that they had experienced a general health problem, ranging from malaria to occupational injuries. These general health problems represent some

of the common problems that affect Ghanaians, with malaria being the lead cause of morbidity in the country and accounting for almost half of all cases reported at health clinics and hospitals from 2006 to 2008 (Ghana Health Service, 2009). Two health-seeking patterns emerged in the narratives of adolescents who reported experiencing a health problem. Approximately half of the adolescents who participated in the IDIs explained that they had sought treatment at a hospital or clinic, while the other half opted for self-medication by purchasing over-the-counter treatments from pharmacies or taking herbs. Pharmacy shops are usually the first line of action in seeking treatment for common illnesses such as headaches, malaria, or worms, particularly in rural areas (Kumi-Kyereme et al. 2007). Many self-medicate when the illness is perceived as non-threatening, but resort to visiting a health care facility if the illness progresses (Afful-Wellington 2003). Also, a minority of Ghanaians resort to faith healing by herbalists or religious camps (Afful-Wellington 2003). Whether they decided to self-medicate or go to a health facility, almost all adolescents explained that they had sought or would seek help from their family members. This was especially the case among younger adolescents, who were most likely to name a parent as a resource in actual as well as hypothetical situations. In the next section, I present the sexual and reproductive health-specific problems that adolescents mentioned during their interviews.

4.5. a. Reproductive health problems. Twenty-six adolescents – mainly females – mentioned that they had experienced a reproductive health problem, but only a few adolescents reported a problem severe enough to require a visit to a

hospital or clinic. The most frequently cited sexual and reproductive health problem by females was a yeast infection (commonly referred to as ‘white’ in Ghana), while males were more likely to describe problems such as painful urination and skin infections. Half of these adolescents indicated that they had informed a parent and a quarter reported that they had informed a sibling. The remaining ones had informed a friend, another adult, or no one. Females most often informed other females in their family, while males tended to inform their friends or peers:

Respondent: I was feeling pains in my penis when I wanted to urinate.

Interviewer: Whom did you first talk to about it?

Respondent: I told my friend first. Because my friend knows my secret.

Interviewer: Why?

Respondent: I did not want others to know about it.

Male, 18 years, in-school, rural

Once informed, virtually all the adults responded by either providing/purchasing remedies or by taking adolescents to seek treatment at hospitals, clinics, or pharmacies:

Respondent: When it [yeast infection] happened I told my mum, and she told me it's because of too many sweets I eat. She took me to the drug store to get me some drugs.

Interviewer: So did you get cured?

Respondent: Yes, I did.

Female, 17 years, in-school, urban

Similar to general health problems, some adolescents successfully treated the sexual or reproductive health problem by using herbal or topical remedies (Figure 4.6).

However, a few adolescents explained that they had not sought treatment because the reproductive health issue did not require medical attention or went away by itself.

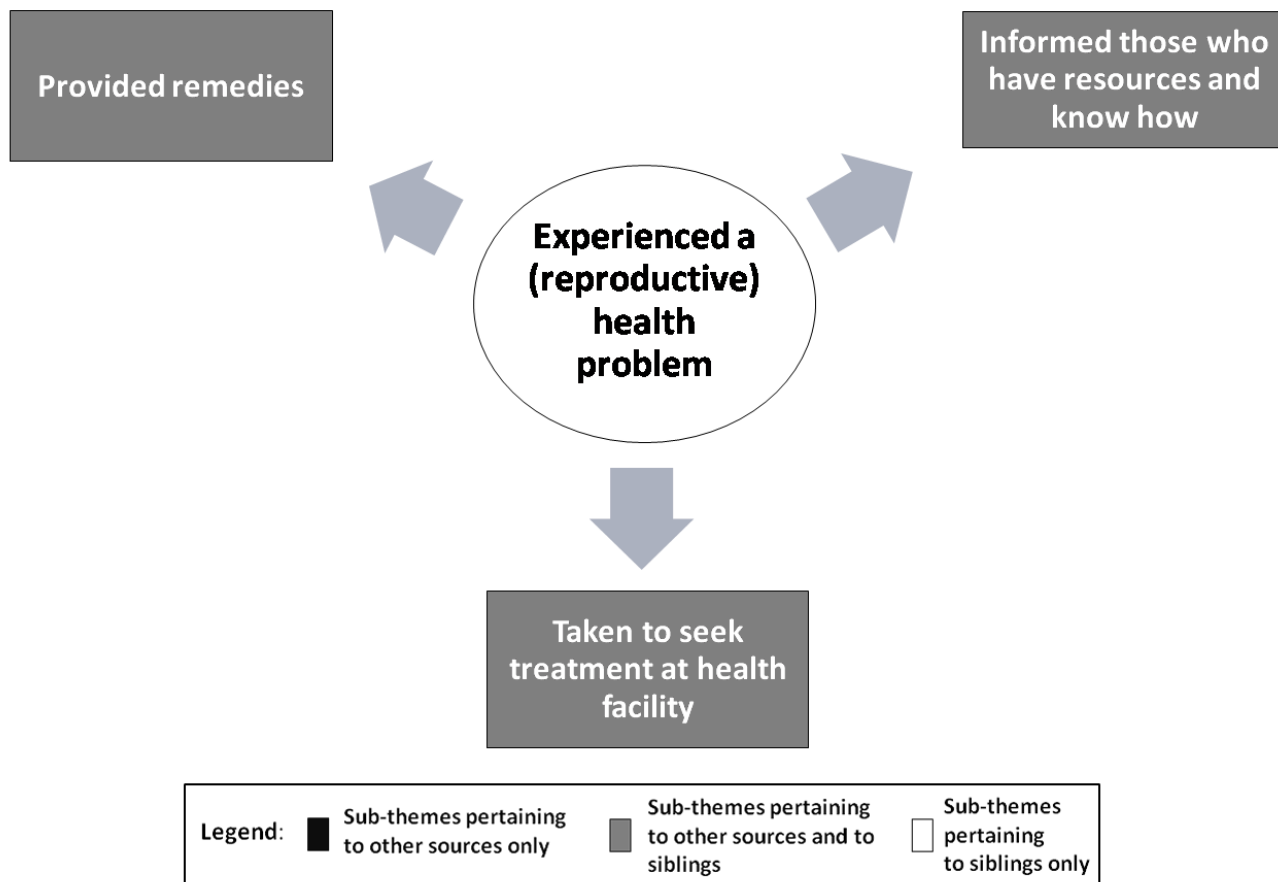


Figure 4.6 – Sub-themes regarding actions taken when adolescents experienced a (reproductive) health problem

4.5.b. Intended healthcare-seeking behaviors. Adolescents who reported that they had never experienced a sexual or reproductive health problem were then asked to describe what they would do in a hypothetical situation. Of the 65 adolescents interviewed, more than half responded that they would seek help from a health care facility and/or pharmacy. Moreover, 2 in 5 adolescents stated that they would seek help from a parent, while about 1 in 5 explained that they would self-medicate. Those who opted for self-medication indicated that they would purchase medicine from pharmacies or use topical creams acquired from pharmacists or herbalists (Figure 4.7). A smaller proportion mentioned that they would seek help from siblings and friends. Similar to those who had experienced a health issue, those who reflected on a hypothetical situation discussed a progressive strategy of self-medication, followed by a visit to health care facility, if necessary. They also explained that they would inform their parents/guardians or would opt for self-treatment, offering similar reasons for taking such actions:

Respondent: A problem with my private part? Then I will look for medicine and treat it.

Female, 16 years, out-of-school, rural

Interviewer: But suppose you get this [reproductive] problem, what will you do?

Respondent: The best thing is to go to the hospital.

Interviewer: Are you sure you can go to the hospital on your own?

Respondent: I will tell my parents to take me to the hospital.

Female, 18 years, in-school, rural

Other adolescents felt confident that they could inform their parents or guardians based on the nature of their relationship:

Respondent: By telling my mother, she will help me cure it because she loves me.

Female, 15 years, out-of-school, urban

Respondent: I will inform my parents about it and I think they will take me to see a doctor. I can do that because I am very free with my parents and I tell them all my problems.

Male, 14 years, in-school, rural

The issue of affordability was also raised among those who were asked to consider a hypothetical situation. Some adolescents anticipated financial constraints while others preferred having the opportunity to afford care on their own:

Respondent: If I go alone and I am asked to buy some medicine. I would not be able to pay for it, so I will go with my father. If I know I will be treated free of charge then I will go alone.

Female, 16 years, in-school, rural

Respondent: I would go to a pharmacy shop and buy some medicine. The clinic would be expensive so I'll buy medicine from a pharmacy shop.

Male, 14 years, out-of-school, urban, refugee

4.5.c. Siblings: real and intended health problems. The narratives of adolescents who reached out to their siblings when they experienced a health problem demonstrate that siblings responded in similar ways to other adults and peers, by providing remedies or by taking adolescents to seek treatment at a health care facility (see Figure 4.6 and Figure 4.7). In spite of the small proportion of adolescents who stated that they would inform or seek help from a sibling, their narratives suggest that some adolescents are prepared to discuss such issues with their siblings, to confide in them, and to trust their judgment. These narratives also suggest that siblings can offer help in ways that may be different from that of others in the family. Chapter 5 takes a closer look at the role of siblings in dealing with adolescents' real or hypothetical health problems.

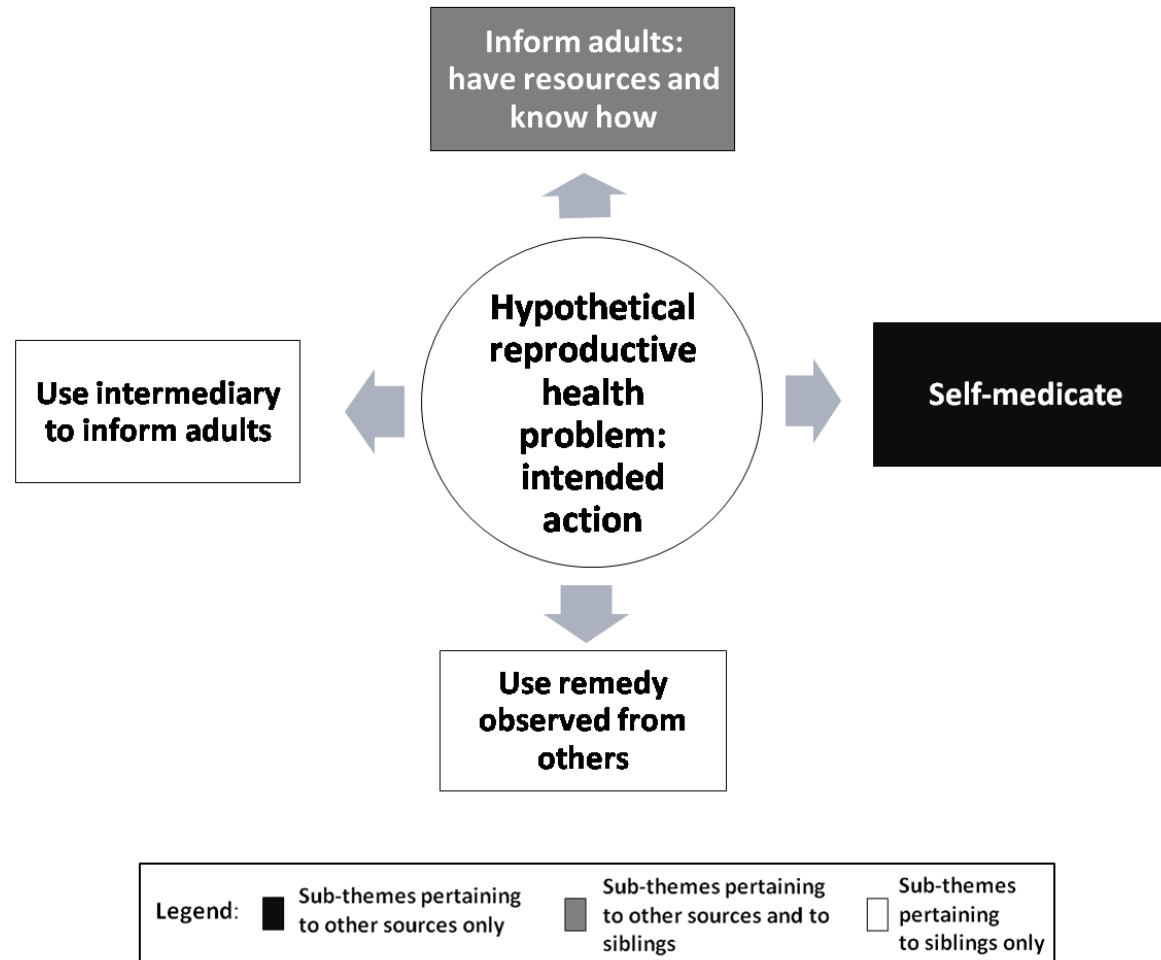


Figure 4.7 – Sub-themes regarded adolescents’ intended actions given a hypothetical reproductive health problem

4.6. – Admiration and aspiration

By middle childhood, the social networks of individuals begin to expand and to include people who are regarded as sources of admiration or aspiration. Especially during the transition to adulthood, these sources can influence behaviors, motivations, and achievements. Presumably, a strong sense of admiration or aspiration increases the likelihood that individuals will take necessary steps to effectuate their goals (Kumi-Kyereme et al. 2007). Unique to the IDIs were questions gauging adolescents' aspirations as well as their role models.

Roughly half of all adolescents interviewed indicated that they aspired to be most like other adults, such as politicians, civil servants, media personalities, and sport celebrities as well as influential community members including teachers and religious leaders. The second most frequently cited source of admiration or aspiration was siblings, followed by parents, then friends. Apart from three adolescents who mentioned former United States President George W. Bush, American actor Will Smith, and British media personality Amanda Lewis as their role models, all other adolescents cited a Ghanaian.

There were notable differences among adolescents according to schooling status and gender. Both in-school males and females were more likely to mention their aspiration to occupy professions requiring a higher education. In contrast, out-of-school adolescents tended to mention vocation-related professions, including hair dressing and dress making (females) as well taxi driving and trading (males). Out-of-school males were also most likely to discuss their desire to emulate community and

religious leaders as opposed to in-school males and females who mostly cited international and national personalities as role models. Kumi-Kyereme et al. (2007) assert that this “variation in aspiration by school status depicts the difference in career horizons for the two categories of adolescents” (p. 45). Almost all adolescents mentioned same-gender role models. The majority of adolescents described only one person, suggesting that they had a strong sense of whom they sought to emulate.

4.6. a. Reasons for aspiration and admiration. A number of themes emerged as adolescents discussed their reasons for admiration and aspiration (Figure 4.8). Nearly half of adolescents in the sample admired the achievements or accomplishments of their role models, including being educated, successful in life, talented, independent, and rich:

Respondent: *President Kufuor <<Ghana’s president from 2000 to 2008>> because he has studied very hard and reached far in life.*
Female, 13 years, in-school, urban

Respondent: *The lady washing over there. It’s because she’s got a good job that’s why I want to be like her.*
Female, 13 years, out-of-school, urban

Respondent: *I want to be like one madam [Name], a teacher in Tamale. She is very rich and I also want to be rich.*
Female, 14 years, out-of-school, rural

A few adolescents aspired to be like their parents who provided for their families’ needs:

Respondent: *She [mother] is a good woman; she always buys me my school uniform.*
Female, 13 years, in-school, rural

Respondent: My father has been buying things for me.
Interviewer: So, you also want to be buying things for your children when you marry?
Respondent: Yes.

Male, 12 years, in-school, rural

Adolescents admired their role model's character and/or qualities, some of which are represented here:

Respondent: A certain woman who is a caterer. I wish to be like her because she is humble and soft spoken.

Female, 19 years, out-of-school, urban

Respondent: I want to be like the Northern Regional Minister. This is because he occupies a higher position and therefore almost everybody respects him.

Male, 18 years, in-school, rural

Adolescents also aspired to be most like adults whose profession they admired:

Respondent: She is in Tamale. <<the capital city of Northern Region>>. She works in an office. I also wished I had a job so that I live like her.

Female, 19 years, out-of-school, rural

Respondent: He is a good Agricultural Officer who has been helping most farmers with scientific information.

Male, 16 years, in-school, rural

One adolescent expressed her unique point of view about role models:

Respondent: I want to be somebody that another person will also want to look up to.

Interviewer: Really, that's a wise saying.

Interviewer: Why do you want to be like that kind of person?

Respondent: Actually, most of the time, a lot of people say that "I want to be like this one, but they might have their negative sides, so I want to grow up to be someone that, another person looks up to.

Female, 19 years, in-school, urban

Lastly, a number of females who were not in school admired their peers in school:

Respondent: A certain girl, she is a student and she has been passing here when she is going to school. [...] I like the way she dresses when she is going to school.

Female, 15 years, out-of-school, urban

Respondent: I have a friend whom I would like to be like. [...] Because she is in school, I wish I were like her.

Female, 17 years, out-of-school, urban

4.6. b. Siblings: admiration and aspiration. Siblings were the second most popular role models discussed by adolescents interviewed. Chapter 5 will elaborate on the reasons adolescents cited for wanting to be most like their siblings, highlighting similarities (emulating character/qualities and achievements) as well as differences (emulating siblings' behaviors and opportunity to move abroad) (Figure 4.8).

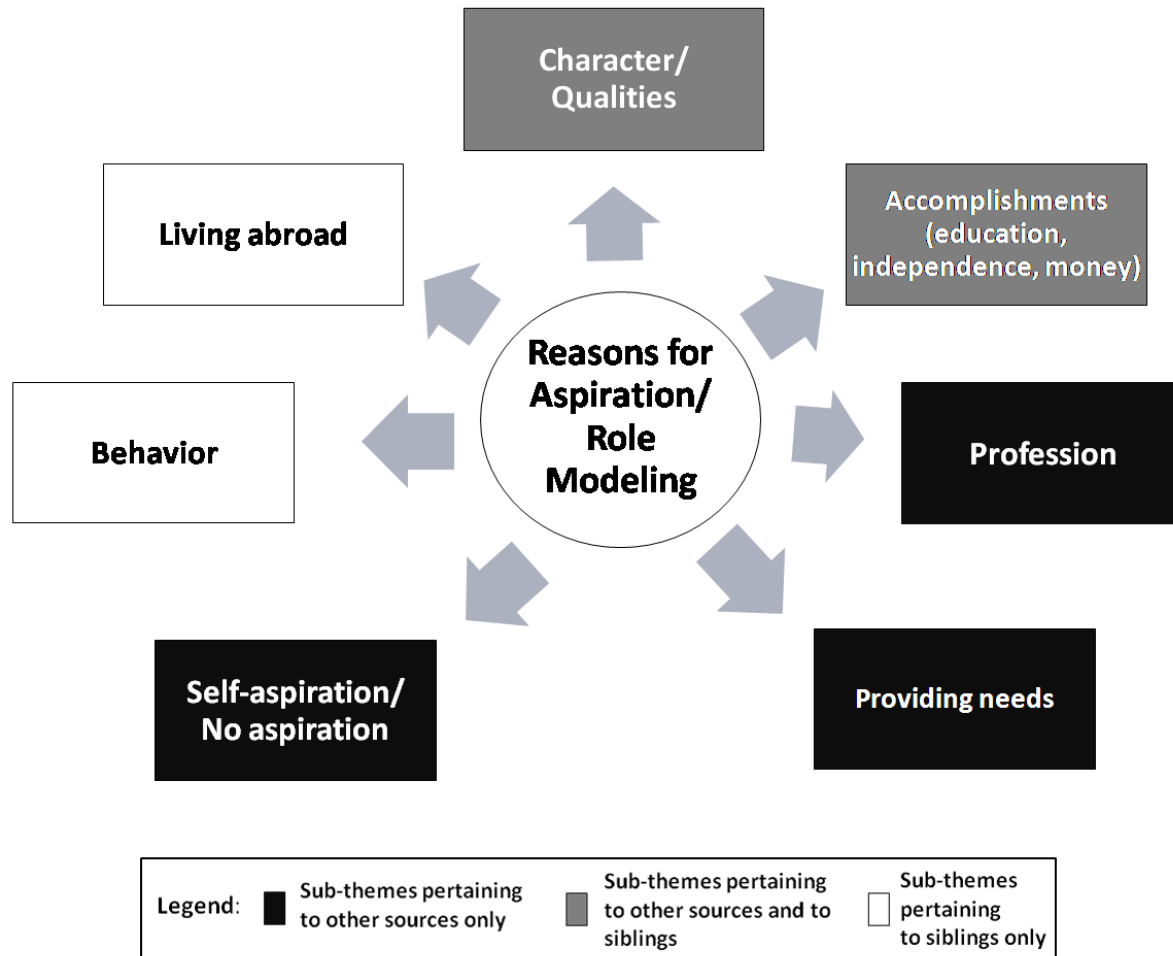


Figure 4.8 – Sub-themes regarding reasons for admiration or role modeling

4.7. – Chapter summary

The purpose of this chapter is to provide an overview of adolescents' range of sources of information and influence, as reported in the survey and IDIs. Adolescents' narratives offered insight into the nature and timing of information as well as their reasons for preferring, trusting, and admiring these sources. National data showed similarity in the proportions of males and females who reported receiving information from the five sources that this chapter focused on. These rankings were parallel for used and preferred sources of contraceptive and STI/HIV/AIDS as well as persons who encouraged them to abstain from sex. However, males were more likely to mention that a friend had talked to them about sex-related matters, while females were more likely to mention that a parent had done so.

Excerpts from the IDIs revealed clear similarities in the timing and nature of information that adolescents received. For instance, several sources reiterated the message of sexual abstinence as well as pregnancy and HIV prevention. These messages were also often intertwined where the risk of pregnancy was raised during discussions of pubertal changes and sexual abstinence was touted as the surest way of avoiding early pregnancy and HIV infection. Nevertheless, there were some important differences in the content of the information that adolescents received. A prominent pattern from adolescents' narratives was that parents more frequently emphasized sexual abstinence until marriage while teachers, health care providers, and friends tended to discuss other alternatives to sexual abstinence, including the consistent use of contraceptives. My findings show no evidence of a double standard of promoting

sexual abstinence before marriage for females, but implicit approval of premarital sexual partnerships for young males that has been observed in previous studies conducted in Ghana (see Ampofo 2001; Nukunya 1969; Fortes 1950). It is possible that this double standard is slowly fading away in more recent times and being replaced by a focus on preventing HIV infection or getting (someone) pregnant among both males and females.

Additionally, adolescents' narratives provided supplemental and complementary information to the patterns noted at the national level according to gender, age, schooling status, and residence. In the IDIs, in-school males and females were more likely to voice their fear of getting (someone) pregnant, of dropping out of school, and of HIV infection. Regardless of their schooling status, almost all adolescents echoed the value of a formal education and sought the opportunity to achieve a certain level of education. In-school adolescents frequently expressed higher aspirations and greater self-efficacy to overcome any possible obstacles compared to out-of-school adolescents. Adolescents who received information about pubertal changes prior to experiencing it expressed less worry and in some cases increased curiosity and anticipation. Conversely, those who received no such prior information expressed fear and anxiety. Females more often reported that they had experienced a reproductive health problem (usually a yeast infection) and those living in urban areas most often mentioned seeking care at a health facility as a first step towards treatment. While younger adolescents were more likely to inform a parent about a health problem, older adolescents and those from rural areas were more likely opt for self-medication and informing others only if necessary.

The role of siblings was tangible particularly because they provided adolescents with similar information to that of other sources. Of the five source of information highlighted in this chapter, however, siblings were the least frequently cited by all adolescents and among all the topics addressed in the survey. Despite these smaller proportions, the next chapter – which focuses on the contexts in which adolescents mention communicating and interacting with siblings – will help demonstrate that the relevance of siblings regarding adolescents’ knowledge, attitudes, and behaviors depends on the subject matter.

CHAPTER 5

SIBLING COMMUNICATION AND INTERACTION

Foreshadowed in Chapter 4, adolescents' communication and interaction with siblings resulted in similar messages to those they received from other sources of sexual and reproductive health information. In this chapter, I draw on all three PNG data sources to examine the contexts within which adolescent-sibling communication and interactions occurred. I first present survey data according to the adolescents' gender, age group, schooling status, and residence. I then present data relevant to siblings' characteristics ascertained from the merging of the adolescent survey with the household survey. I use illustrative examples from the focus group discussions (FGDs) and in-depth interviews (IDIs) that uncover sibling-related themes and sub-themes. In addition to the overall patterns of sibling communication and interactions, this chapter explores instances of social and observational learning from siblings as well as the role of siblings in the functioning of the family. The similarities and differences between the data sources provide the richness from which my research questions can be explored.

In the survey, adolescents were asked about those who spoke to them about sex-related matters, although the question was framed in terms of general sexual and reproductive health information in the FGDs. In the IDIs, adolescents were asked to name those who talked to them about puberty as well as those who were aware of their intimate relationships. Common to all three sources of data were inquiries about used

and preferred sources of information about pregnancy prevention or contraceptives as well as STIs/HIV/AIDS. In the survey and IDIs, adolescents were asked about those who had encouraged them to abstain from sex, their major sources of concern, and their participation in initiation ceremonies or rites. Questions regarding health seeking strategies and/or barriers to health care access were asked in the FGDs and IDIs. Unique to the IDIs were questions about adolescents' sources of admiration and aspiration as well as their trusted sources of pregnancy and STI/HIV/AIDS prevention.

5.1. – *Number of siblings*

Survey data reveal that the average number of siblings in the sampled households was 3.3. Only children accounted for only 7.0% of the sample. Approximately 1 in 5 male and female adolescents had at least two older siblings (see Table 5.1). In the next several sections I describe statistical data from the survey. Tests of statistical significance were not run, however, so it is not certain whether differences reported are statistically significant. Regression results that are presented later in the chapter help answer that question.

5.2. – *Sibling dyad composition: the significance of birth order and gender*

5.2.a. *Birth order.* The mean number of *older* siblings was 1.1 and 42% of male and female adolescents were the oldest children. Twenty-nine percent of adolescents had at least one older sibling. Among males, 10.3 % indicated that an older brother had talked with them and 8.4 % had spoken with an older sister. Females

appeared to consult older brothers and sisters equally, with approximately 15% indicated that they had communicated with an older sibling about sex-related matters (see Table 5.2).

Almost all adolescents who participated in the FGDs and IDIs made references to older sibling(s) when discussing their communication and interaction as well as sources of sexual and reproductive health information (Appendix C and Appendix D):

Gifty: Our parents also provide us with information on reproductive health. Also from older siblings.

Focus Group F2; female; 14-16 year olds; out-of-school; rural

Maimuna: Some young people also get such information from their peers or older siblings.

Focus Group F3; female; 14-16 year olds; in-school; urban

Action: Some girls get information from older sisters or older friends.

Focus Group F4; female; 17-19 year olds in-school; rural

In the IDIs, a few adolescents made reference to their younger siblings when discussing whether they would recommend initiation rites for them and when discussing those who were aware of their intimate relationships.

5.2.b. Gender. Research studies find that the gender composition of a sibling dyad can affect the nature of their communication and interaction. A growing body of research shows that compared to cross-gender sibling dyads (‘sister-brother’ or ‘brother-sister’), same-gender sibling dyads (‘sister-sister’ or ‘brother-brother’) have generally been found to identify more with one another, share more companionship, develop similar interests, engage in similar activities, and spend more time together

(Ardelt and Day, 2002; Bandura, 1969; Carey, 1986; Dunn and Kendrick, 1982; Dunn, 1983; East and Khoo, 2005; Furman & Buhrmester, 1985; Longstreth et al., 1975; Rodgers et al., 1992; Rowe and Gulley, 1992; Sutton-Smith and Rosenberg, 1970; Slaby and Frey 1975). Data from all three sources reflected the significance of communication and interaction according to the gender composition of the sibling dyad. Across all topics of interest, communication between female adolescents and their sister(s) was the most prevalent, followed by communication between male adolescents and their brother(s). Survey data also indicated equivalent proportions of cross-gender sibling communication (not shown). Specifically, national data show that higher proportion of males reported that their brother had discussed sex-related issues with them and encouraged them to abstain from sex compared to the proportion of males who reported that their sister had discussed these issues or encouraged them to abstain from sex (Table 5.9). Survey data also show that a larger proportion of females reported that their sister had discussed sex-related matters and had encouraged them to abstain from sex compared to the proportion of females who reported that their brother who had done the same, respectively (Table 5.10). Similarly, a larger proportion of females cited their sister as a used and preferred source of information about contraceptives as well as STIs or HIV/AIDS compared to the proportion of females who regarded their brother as such (Table 5.10). Regardless of topic, comparable proportions of females reported communication with their brother as did males who reported communication with a sister. Further analyses need to be performed to determine whether there are statistically significant differences between these subgroups. The IDIs provided complementary data on adolescents' communication

with their siblings. Appendix C captures the preponderance of communication by same-gender dyads across several topics, while Appendix D offers a detailed description of the contexts of communication or interaction with a sibling and shows that most adolescents referred to their sibling in more than one context.

Table 5.1 – Frequency and percentage distribution of adolescents, by characteristics of siblings, 2004 National Survey of Adolescents (Ghana)

	Total		Males		Females	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Adolescents with no siblings*	215	7.0	101	6.3	113	7.83
Number of siblings						
1	409	13.4	204	12.7	205	14.1
2	605	19.8	298	18.5	307	21.2
3 or more	1833	59.9	1009	62.6	824	56.9
N=	3062	100.0	1613	100.00	1449	100.00
Mean number of siblings	3.3	--	3.4	--	3.2	--
Number of older siblings*						
0	1281	41.8	670	41.5	611	42.1
1	892	29.1	450	27.9	442	30.5
2	493	16.1	265	16.4	228	15.7
3 or more	397	13.0	229	14.2	169	11.6
N=	3062	100.0	1613	100.00	1449	100.00
Mean number of older siblings	1.1	--	1.1	--	1.0	--

*siblings defined as those identified by the head of household as son, daughter (n=2978) as well as stepchild, adopted child, and fostered child (n=84). Ns are weighted; N=total number of observations.

Table 5.2 – Frequency and percentage distribution of adolescents who communicated with a sibling, by older siblings’ status and adolescents’ socio-demographic characteristics, 2004 National Survey of Adolescents (Ghana)

	Talked to sibling about sex-related matters					
	Total		Males		Females	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
With at least one older siblings*	240	12.0	93	11.4	146	12.5
With at least one older brother*	219	12.3	97	10.3	122	14.6
With at least one older sister*	215	10.6	111	8.4	104	14.8
Residence						
Urban	265	12.8	98	9.9	167	15.6
Rural	226	9.6	104	8.5	122	10.9
Current schooling status						
In-school						
Out-of-school	361	11.2	158	9.3	203	13.3
	103	12.5	38	10.2	65	14.4
Age group						
12-14 years	149	7.7	51	5.3	98	10.2
15-19 years	342	13.8	151	12.1	192	15.5

*siblings defined as those identified by the head of household as son, daughter (n=2978) as well as stepchild, adopted child, and fostered child (n=84). Ns are weighted; N=total number of observations.

5.3. – *Communicating with siblings*

While adolescents were asked about their sources of communication regarding STIs/HIV/AIDS and contraceptives or pregnancy prevention in both the survey and IDIs, they were also asked an overarching question regarding communication about sex-related matters in the survey. Adolescents who participated in the IDIs were asked accompanying questions regarding those who had talked with them about puberty as well as those who knew about their intimate relationships, two topics that I consider to be part of sex-related matters. In the FGDs, adolescents asked about those who had communicated with them about sexual and reproductive health issues in general.

In this section, I present results from all three data sources concerning these inter-related topics and highlight differences or similarities according to socio-demographic characteristics (gender, residence, current schooling status, and age group). Where relevant and possible, I present themes and sub-themes that emerged from the FGDs and IDIs. The bivariate and multivariate analyses that I discuss, however, pertain only to the topic of communication about sex-related matters with a sibling. As noted earlier, the majority of adolescents in the FGDs and IDIs referred to their *older* siblings when discussing their communication with siblings about sex. I therefore limit my analyses to adolescents from the survey that had at least one older sibling to consult with, as way to systematically assess these patterns. With the exception of regression results, my summaries are approximations because significance tests were not performed.

5.3.a. Sex-related matters. Approximately 11% of adolescents sampled in the survey (9.1% males and 13.2% females) reported that a sibling had talked to them about sex-related matters (Table 4.1).

- **Residence.** A higher proportion of adolescents from urban areas reported that they had communicated with a sibling about sex-related matters (12.8%) compared to those in rural areas (9.6%). Regression analyses reveal that rural adolescents were 28% less likely to report communication with a sibling about sex and that the difference was statistically significant. Among males, similar proportions of urban and rural males reported communicating with a sibling (9.9% and 8.5%, respectively). For females, though, a higher proportion those from urban areas reported that their sibling had communicated with them about sex (15.6%) compared to females from urban areas (10.9%). Results from the regressions indicate that the difference among females by residence was marginally significant and that rural females were approximately 35% less likely to communicate (Models 1 and 4 in Table 5.5).

Among those who had at least one older sibling, rural adolescents were again less likely to communicate with an older sibling compared to urban adolescents although the difference between the two groups was marginally significant (Model 1 in Table 5.6). Again, there was a significant difference among females by residence. Rural females were 37% less likely to communicate with an older sibling about sex-related matters (Model 1 in Table 5.8). The IDIs give a similar impression about potential rural-urban differences in communication with siblings (Appendix C and Appendix D).

- ***Current schooling status.*** At the national level, the proportions of all adolescents who were in school and out of school at the time of the survey who reported communicating with a sibling about sex-related issues did not differ much (11.2% and 12.5%, respectively) among both males and females (Table 5.2).
- ***Age group.*** A higher proportion of older adolescents (15-19 years) reported that their siblings had talked with them about sex-related matters (13.8%) versus 7.7% of younger adolescents (12-14 years) who reported the same. While the gap was slightly larger among males than females, communication with siblings generally increased with age regardless of gender (see Table 5.2). The relevance of age was evident in both the cross-tabulations and regression analyses. Older adolescents were about two times more likely to communicate with a sibling about sex-related matters than younger adolescents and the difference between these two groups was statistically significant (Models 3 and 4 in Tables 5.3 through 5.5, and Tables 5.6 and 5.7). Older adolescent males were nearly three times more likely to communicate with a sibling about sex than younger males (see Model 3 in Table 5.4) while older females were about two times more likely to do so than younger females (see Model 3 in Table 5.5). The differences between the groups were statistically significant, among males as well as females.

Similarly, among adolescents who had at least one older sibling, those aged 15-19 were two times more likely to communicate with a sibling about sex than were their younger counterparts. Net of other factors, the likelihood

was very high among males (OR=3.22). Further analyses are needed as it is not clear why the likelihood among older females was only marginally significant (OR=1.52) (Tables 5.6, 5.7, and 5.8).

- ***Accounting for multiple characteristics.*** Controlling for residence, schooling status, and age group, the significance of the bivariate effects observed in Models 1-3 remained unchanged (see Model 4 in Table 5.3, 5.4, and 5.5). Controlling for the same socio-demographic characteristics among adolescents who had at least one older sibling, the marginally significant effect of residence disappeared, while the effect of schooling status emerged as marginally significant. Adolescents who were out-of-school and had an older sibling were 34% less likely to communicate with an older sibling about sex-related matters.

Among males, the effect of residence was not significant in any model, but the effect of being out of school became significant once other factors were controlled. Among females, the effect of residence persisted where those living in rural areas were significantly less likely than those living in urban areas to report communication with a sibling about sex-related matters (Tables 5.7 and 5.8). The possible reasons behind these gendered patterns will require further investigation.

Table 5.3 – Likelihood of communicating with a sibling about sex-related matters, by socio-demographic characteristics, all adolescents, 2004 National Survey of Adolescents (Ghana)

Talking with sibling about sex-related matters	<i>All adolescents</i>			
	Model 1	Model 2	Model 3	Model 4
Residence				
Urban ^{RC}	--			--
Rural	.72**			.75**
Current schooling status				
In-school ^{RC}		--		--
Out-of-school		1.13		.87
Age group				
12-14 years ^{RC}			--	--
15-19 years			1.91***	2.01***
Number of observations	4430	4050	4430	4050

Statistical significance: *** p<.001; **p<.01; *p<.05; †p<.10; ^{RC}: reference category; Ns are weighted

Table 5.4 – Likelihood of communicating with a sibling about sex-related matters, by socio-demographic characteristics, males, 2004 National Survey of Adolescents (Ghana)

Talking with sibling about sex-related matters	<i>Males</i>			
	Model 1	Model 2	Model 3	Model 4
Residence				
Urban ^{RC}	--			--
Rural	.84			.91
Current schooling status				
In-school ^{RC}		--		--
Out-of-school		1.10		.80
Age group				
12-14 years ^{RC}			--	--
15-19 years			2.47***	2.65***
Number of observations	2229	2069	2229	2069

Statistical significance: *** p<.001; **p<.01; *p<.05; †p<.10; ^{RC}: reference category; Ns are weighted

Table 5.5 – Likelihood of communicating with a sibling about sex-related matters, by socio-demographic characteristics, females, 2004 National Survey of Adolescents (Ghana)

Talking with sibling about sex-related matters	<i>Females</i>			
	Model 1	Model 2	Model 3	Model 4
Residence				
Urban ^{RC}	--			--
Rural	.65**			.66**
Current schooling status				
In-school ^{RC}		--		--
Out-of-school		1.10		.89
Age group				
12-14 years ^{RC}			--	--
15-19 years			1.62***	1.68***
Number of observations	2201	1981	2201	1981

Statistical significance: *** p<.001; **p<.01; *p<.05; †p<.10; ^{RC}: reference category; Ns are weighted

Table 5.6 – Likelihood of communicating with a sibling about sex-related matters, by socio-demographic characteristics, all adolescents with at least one older sibling, 2004 National Survey of Adolescents (Ghana)

Talking with sibling about sex-related matters	<i>All adolescents</i>			
	Model 1	Model 2	Model 3	Model 4
Residence				
Urban ^{RC}	--			--
Rural	.76†			.81
Current schooling status				
In-school ^{RC}		--		--
Out-of-school		.92		.66†
Age group				
12-14 years ^{RC}			--	--
15-19 years			1.99***	2.14***
Number of observations	1778	1641	1778	

Statistical significance: *** p<.001; **p<.01; *p<.05; †p<.10; ^{RC}: reference category; Ns are weighted

Table 5.7 – Likelihood of communicating with a sibling about sex-related matters, by socio-demographic characteristics, males with at least one older sibling, 2004 National Survey of Adolescents (Ghana)

Talking with sibling about sex-related matters	<i>Males</i>			
	Model 1	Model 2	Model 3	Model 4
Residence				
Urban ^{RC}	--			--
Rural	.98			1.05
Current schooling status				
In-school ^{RC}		--		--
Out-of-school		.59		.38**
Age group				
12-14 years ^{RC}			--	--
15-19 years			2.62***	3.22***
Number of observations	937	874	937	874

Statistical significance: *** p<.001; **p<.01; *p<.05; †p<.10; ^{RC}: reference category; Ns are weighted

Table 5.8 – Likelihood of communicating with a sibling about sex-related matters, by socio-demographic characteristics, females with at least one older sibling, 2004 National Survey of Adolescents (Ghana)

Talking with sibling about sex-related matters	<i>Females</i>			
	Model 1	Model 2	Model 3	Model 4
Residence				
Urban ^{RC}	--			--
Rural	.63*			.66*
Current schooling status				
In-school ^{RC}		--		--
Out-of-school		1.20		1.00
Age group				
12-14 years ^{RC}			--	--
15-19 years			1.64*	1.52†
Number of observations	841	767	841	767

Statistical significance: *** p<.001; **p<.01; *p<.05; †p<.10; ^{RC}: reference category; Ns are weighted

5.3.b. Puberty as a sex-related matter. The timing of puberty-related information can significantly affect the experience of adolescents during their transition to adulthood. At the time of the survey, roughly 2 in 3 adolescents had experienced puberty, with a median age of 14.8 years for females and 15.1 years for males (Table 3.2). The IDIs reveal that the puberty-related information adolescents received from siblings were similar to what they received from other sources (Figure 4.1). Once again, those who were informed prior to or around the time these changes occurred were less likely to express fear, anxiety, or surprise. Like other sources, siblings honed in on physical and behavioral changes as well as expected conduct.

For females, sisters tended to link pubertal changes to personal hygiene, appropriate dressing, and the risk of pregnancy:

Respondent: It was my sister who talked to me about how to dress up and also advised me to keep away from men since I can become pregnant this time that I started menstruating.

Female, 17 years, out-of-school, urban

For males, discussions were geared toward behavioral changes, including sexual urges:

Respondent: My brother talked to me about how to control my sexual desires in the presence of girls.

Interviewer: When were you first told about these changes?

Respondent: When I was 13 years old.

Male, 16 years, out-of-school, urban, remand

A handful of adolescents reached out to their sibling when they first experienced pubertal changes, regardless of whether they were already aware of these changes:

Respondent: I did not feel anything, but I noticed that I was bleeding so I told my sister about it and she gave me pad to dress up.

Female, 17 years, out-of-school, urban

Respondent: I was surprised and asked my brother and he said I'm now getting matured.

Male, 15 years, in-school, rural

Pubertal changes can also be recognized through initiation ceremonies or rites.

During their interviews, a few adolescents explained why they would recommend that their younger siblings partake in such ceremonies or rites. Their reasons – tradition, culture, stigma, repercussions for the family, and moral behavior – shed light on the role of siblings as agents of socialization (see ‘*Inside Look 5.1*’).

Inside Look 5.1:

Intra-generational transmission of norms

Initiation rites were traditionally performed at the onset of puberty to usher early adolescents into adulthood. In Ghana, these rites range from simple acts performed in private to more decorative ceremonies witnessed by the entire community.

For a variety of reasons, initiation ceremonies have slowly faded from the cultural script of ethnic groups in Ghana, although some groups have preserved symbolic acts such as swallowing a whole egg to represent fertility. The decline of these practices was evident in the high proportions of adolescents (both in the survey and IDIs) who stated that they had never taken part in an initiation ceremony. Nevertheless, those who indicated that they had participated in such a ceremony were also asked if they would recommend it for their younger sibling.

The reasons provided by these adolescents underscore the potential for the transmission of social, cultural, and gender expectations or norms between siblings.

I would recommend that initiation rites be performed for my sister or friend because you will be ridiculed by friends when you don't do it and your mother on the hand would feel embarrassed.

Female, 18 years, in-school, urban

Yes, because it is a tradition. When you fail to do it, you won't give birth and also you cannot go to your hometown.

Female, 18 years, out-of-school, urban

Because it is part of our culture.

Female, 18 years, out-of-school, urban, street child

Yes, some young girls and boys who go through the ceremony usually keep to good moral behaviour.

Male, 18 years, out-of-school, rural

5.3.c. Intimate relationships as a sex-related matter. In FGDs, discussions of intimate relationships emerged when adolescents were asked to identify those with whom they discussed sexual and reproductive health issues:

Interviewer: What are the types of reproductive health issues do you talk about?

Scolio: Sexual relationships. I have an older sister who is at Tamale (Northern Ghana). Any time she comes home she will ask me if I have a boyfriend. Then she ends up advising me to desist from sexual activities.

Focus Group F6; female, 17-19 year olds, in-school, urban

Abiba: At times our older siblings tell us issues regarding boy-girl relationships.

Focus Group F4; female, 17-19 year old, in-school, rural

With the FGDs serving as an exploratory exercise, the topic of romantic and/or sexual relationships was more specifically addressed in the IDIs as part of sex-related issues of importance to adolescents. Whether intentional or not, some siblings and other family members were not made aware of adolescents' intimate relationships:

Interviewer: When adolescents your age have questions or problems about relationships with girls, whom do they discuss it with?

Aki: My friend because your parents and your siblings may not be aware of the relationship. It is your friend who is likely to be aware; so it is better to talk to your friend or an elderly person you respect in the community. If you decide to talk to the girl, the problem will not be resolved, because it is the girl that you have had the problem with.

Focus Group M5; male, 17-19 year olds, out-of-school, urban

Respondent: I was selling tea with my sister when he called me and told me he loves me. Since then he has been inviting me to his place and we have sexual intercourse anytime I go to him until I became pregnant.

Interviewer: Was anybody aware of your relationship?

Respondent: No, not even my mother or my sister.

Female, 15 years, out-of-school, urban

Siblings who were aware of adolescents' relationships were usually supportive, explicitly and implicitly:

Respondent: My friends and my siblings are aware of our relationship. They said he is a handsome boy.
Female, 15 years, out-of-school, urban

Respondent: Only my friends knew about our relationship, but recently my sister has also seen it because my boyfriend buys gifts for my younger brother. My sister has not reacted negatively, but she is on good terms with my guy. My friends, on the other hand, like him.
Female, 18 years, in-school, urban

Siblings also offered advice regarding the timing of intimate relationships, advice some adolescents internalized:

Respondent: My brothers said I shouldn't have a girlfriend now. [...] They said I shouldn't rush in life.
Interviewer: When do you expect to have your first girlfriend?
Respondent: When I am 17 years.
Interviewer: Why 17?
Respondent: That is what my brother said to me.
Interviewer: When do you hope to have sex for the first time?
Respondent: When I am 17 years old.
Interviewer: Why then?
Respondent: I would be old enough.
Male, 14 year-old, out-of-school, urban

Other adolescents initiated the conversation about intimate relationships with their siblings and heeded to their advice:

Respondent: Yes, my friend and my brother [knew]. Before I talked to the girl, I discussed it with my brother and he said she was a good girl and that I can take her as my friend but not to have sex with her, but rather I should study hard and help her in her studies.
Respondent: We had a study group and often we study together in the class.
Interviewer: What about anything sexual?
Respondent: No.
Interviewer: For how long did this relationship last?
Respondent: Two years.
Male, 17 years, in-school, rural

5.3.d. Pregnancy and contraceptives information: siblings as sources of information. In all three data sources, adolescents named siblings as one of several sources of information about pregnancy and contraceptives. Data from the survey show that roughly 4% of males and females cited a sibling as a source of such information (Tables 4.1, 5.5, and 5.6). Among males, higher proportions of those who were out-of-school and from rural areas reported that a sibling had communicated with them about contraceptives compared to males in school and from urban areas (Table 5.9). Similar proportions of younger and older males reported that their sibling had talked to them about contraceptives. Among females, higher proportions of those who were older, out-of-school, and from urban areas indicated that a sibling had communicated with them about contraceptives compared to their respective female counterparts (Table 5.10). Even though national data also show that siblings were the least likely to be named as a source of pregnancy information when compared to the media, teachers or health care providers, friends, and parents, adolescents' narratives suggest that siblings were sometimes as concerned as others were as they cautioned adolescents about preventing early pregnancy:

Respondent: She [sister] said that I should not go to any boy's house else someone might ask me to have sex with him.
Female, 14 years, out-of-school, urban

Respondent: Yes, my brother told us about it. In fact, there are many teenage pregnancies in this town.

Interviewer: Did you find these talks useful?

Respondent: Yes, I am still under the care of my uncle and it would not augur well if I happen to impregnate someone.
Male, 14 years, out-of-school, rural

Adolescents were not always on the receiving end of information about pregnancy prevention from older siblings. As evinced by the words of a male adolescent whose siblings worked as head porters, some sought to share their knowledge with other siblings instead. ‘*Kaya yei*’ is a Ghanaian term used to describe female head porters who carry merchandise for others (*kaya* means load or luggage in the Hausa language and *yei* means women in the Ga language). In the marketplace, *kaya yei* are typically hired to follow customers as they run their errands and to carry their merchandise. Usually migrants, *kaya yei* work in poor conditions, earn a minimal wage, and face several vulnerabilities and challenges as a result of their occupation (see Opare, 2003 for an extensive review). Related studies have noted many forms of sexual networking among the youth who frequent these market centers and lorry parks, including those living on the streets, *kaya yei*, male lorry drivers and the mates, male porters, and female sellers (Anarfi and Antwi 1995; Anarfi 1997). This 14-year old male, who appreciated the risks associated with working as a head porter, found value in the puberty and pregnancy prevention information he had been taught in school and conveyed the information to his sisters:

Respondent: He [teacher] said as a young girl immediately you start developing breast, you should be careful with men because you can easily become pregnant. He told the girls to always insist that the boys use condoms anytime they are to have sex. But he also said it is always good to abstain.

Interviewer: Did you find these talks useful or not?

Respondent: It was useful because our sisters normally go for ‘*kaya yei*’ and we also tell them the dangers involved in having sex without a condom.

Male, 14 year-old male, Ghana, in-school, rural

5.3.e. STIs/HIV/AIDS information: siblings as sources of information.

About 5% of adolescents sampled in the survey cited their sibling as source of information about STIs/HIV/AIDS. While younger and older males were as likely to name a sibling as a source of information about STIs/HIV/AIDS, higher proportions of out-of-school and rural males reported the same (Table 5.9). Among females, older and urban females tended to describe a sibling as such compared to younger and rural females, but there was no difference by their schooling status (Table 5.10).

5.3.f. Pregnancy, contraceptives, and STIs and/or HIV/AIDS information: siblings as preferred sources of information. National survey data revealed that negligible proportions of adolescents cited a sibling as a preferred source of information about contraceptives (see Tables 5.9 and 5.10). Likewise, in the FGDs and IDIs, the few adolescents who regarded a sibling as a preferred source of contraceptive information named a sibling as one of several preferred sources (data not shown). Of note, however, is that higher proportions of females reported their sister as a preferred source of information about contraceptives (Table 5.10) than males who reported their brother as such.

As was true for the topic of pregnancy, data from the survey show that very few adolescents regarded their sibling as a preferred source of STI and/or HIV/AIDS information (see Tables 5.9 and 5.10), a pattern that was also reflected in the IDIs. Females were again more likely to cite a sister as a preferred source of this information (see Table 5.10) than males were likely to cite a brother. The latter was

also noted in the IDIs where adolescents consistently named a sibling among others as a preferred source:

Interviewer: Are there people you feel you can go to for talk about HIV/AIDS?

Respondent: Yes, my mother, sister, my grandma, or the Imam.

Interviewer: Have you talked with these people?

Respondent: No, but I would trust any of them.

Female, 15 years, out-of-school, urban

5.3.g. Siblings as trusted sources of information. Four sub-themes emerged as adolescents expounded on their reasons for preferring and/or trusting their siblings. First, participants in various FGDs raised the matter of experience and knowledge, such that being older was equated with having had some experience with sexual and reproductive health matters and thus, having accurate information:

Ajiah: From our older siblings or friends because some of them might have experienced such problems [sexual and reproductive health] before.

Focus Group F1; female, 14-16 year olds, in-school, rural

Lamina: Senior brothers because they have some previous experiences that they can share.

Focus Group M5; male, 17-19 year olds, out-of-school, urban

Knowledge on the subject matter and the experience of childbearing were other justifications for preferring and trusting siblings' information about pregnancy and prevention:

Interviewer: Who do you think knows more about pregnancy prevention?

Respondent: My sisters and brothers.

Interviewer: Do you trust the information from your brothers or sisters?

Respondent: Yes. [...] Because they have children.

Female, 16 years, in-school, rural

Second, a sibling's gender was another rationale for preferring and/or trusting them:

Interviewer: Who do young people prefer to talk to about these reproductive health issues?

Scolio: Our older siblings of the same sex.

Focus Group F6; female, 17-19 year olds, in-school, urban

Opepeni: My sister because she is also a girl and will understand the issues.

Focus Group M5; male, 17-19 year olds, out-of-school, urban

A third determining factor for preference and/or trust was the nature of the sibling relationship, although distinctions were made between siblings and friends:

Interviewer: Who do young people prefer talk to about abortion, pregnancy, etc.?

Yaa: Friends. This is because some friends are good and they will not divulge information to other people.

Esi: Peers. Because like Yaa said, some are good and will not tell anybody.

Akos: Older sisters. I think they are better than friends. They can keep secrets.

Focus Group F3, female, 14-16 year olds, in-school, urban

Interviewer: Whom will you readily discuss your sexual relationships with? Why?

Yaya: Because I am closer to my friends than any other group of people. I feel more comfortable telling them everything.

Addo: I normally don't trust my friends. I trust my sister most.

Richard: I also discuss it with my elder brother because we get on very well.

Focus Group M4; male; urban; in-school; 17-19 year olds

Other adolescents exhibited their trust by confiding in their siblings. In the excerpt below, an adolescent (who eventually married this man who impregnated her) divulged her pregnancy and fear to her sister:

Respondent: I was afraid so I went to inform my sister about what happened and my sister also went to inform him that I said I am afraid I could be pregnant.

Female, 17 years, out-of-school, urban

5.3.h. Utility of information. When asked about the usefulness of the information they received from their siblings regarding puberty, STI/HIV/AIDS and pregnancy prevention, the majority of adolescents who participated in the IDIs agreed that it had been beneficial. Adolescents expressed that the information shared by their siblings had impacted their current or intended behavior. According to a female adolescent, her sister-in-law's talk about the risk of pregnancy following her first menstruation gave her reason to become careful in her relationship with men. Similarly, a male adolescent explained that this brother's talk had taught him about how to comport himself in the company of girls. According to another female, the talk with her sister heightened her awareness of the potential consequences of early pregnancy, specifically, that no one would look after her.

In spite of the positive tone suggested by adolescents about their siblings as preferred and/or trusted sources of health information, some adolescents did not regard siblings as such. Cosmos, for example, expressed his aversion to discussing sexual and reproductive health with his sibling, but did not elaborate on his reasons:

Cosmos: I am close to her [mother] and I discuss a lot of things with her. We discuss my friends and when I have a problem, she is prepared to listen. As for my brother, I cannot discuss such things with him.
Focus Group M4, male, 17-19 year olds, in-school, urban

Adolescents like Cosmos illustrated how siblings can, at times, thwart a teachable moment:

Emmanuel: Sometimes, we have a wrong impression about things that are shown on TV. Sometimes, when I am in the sitting room with my parents and there is a sexual scene, my parents seize that opportunity to educate me on sex.

Cosmos: In my house for instance, when my sister sees such scenes, she puts off the TV. She will not allow you to watch it.

Focus Group M4, male, 17-19 year olds, in-school, urban

While it is not clear how unique a situation like Cosmos' would be, his case provided an example of how siblings may sometimes preclude the opportunity to learn about sexual and reproductive health as well as the opportunity to communicate with (older) siblings about these topics.

Table 5.9 – Percentage of male adolescents reporting at least one sibling as a used and preferred source of sexual and reproductive health information, by current schooling status, age group, and residence, 2004 *National Survey of Adolescents*

Male Adolescents									
	Age Group			Current Schooling Status			Residence		
	<i>12-14 years</i>	<i>15-19 years</i>	<i>Total Percentage</i>	<i>In-school</i>	<i>Out-of-School</i>	<i>Total Percentage</i>	<i>Urban</i>	<i>Rural</i>	<i>Total Percentage</i>
<i>Topic: Discussed sex-related matters</i>									
Brother	3.9 (N=981)	9.2 (N=1252)	6.8 (N=2233)	6.9 (N=1712)	7.8 (N=380)	7.1 (N=2092)	7.0 (N=996)	6.7 (N=1236)	6.8 (N=2232)
Sister	2.1 (N=981)	4.6 (N=1252)	3.5 (N=2233)	3.9 (N=1712)	2.9 (N=380)	3.7 (N=2092)	4.1 (N=996)	3.0 (N=1236)	3.5 (N=2232)
Any Sibling	5.3 (N=981)	12.1 (N=1254)	9.1 (N=2235)	9.3 (N=1714)	10.2 (N=381)	9.5 (N=2095)	9.9 (N=997)	8.5 (N=1238)	9.1 (N=2235)
<i>Topic: Source of contraceptive information</i>									
Brother	4.4 (N=825)	3.7 (N=1203)	4.0 (N=2028)	3.4 (N=1562)	5.6 (N=354)	3.8 (N=1916)	3.0 (N=958)	4.9 (N=1069)	4.0 (N=2027)
Sister	1.2 (N=825)	0.9 (N=1203)	1.0 (N=2028)	1.2 (N=1562)	0.2 (N=354)	1.0 (N=1916)	0.9 (N=958)	1.1 (N=1069)	1.0 (N=2027)
Any Sibling	4.2 (N=981)	3.8 (N=1254)	4.0 (N=2235)	3.6 (N=1714)	5.2 (N=381)	3.9 (N=2095)	3.3 (N=997)	4.6 (N=1238)	4.0 (N=2235)
<i>Topic: Preferred source of contraceptive information</i>									
Brother	1.5 (N=803)	0.5 (N=1180)	0.9 (N=1983)	0.8 (N=1525)	1.8 (N=347)	1.0 (N=1871)	1.3 (N=942)	0.5 (N=1041)	0.9 (N=1983)
Sister	1.0 (N=803)	0.0 (N=1180)	0.4 (N=1983)	0.5 (N=1525)	0.0 (N=347)	0.4 (N=1871)	0.6 (N=942)	0.2 (N=1041)	0.4 (N=1983)
Any Sibling	1.9 (N=981)	0.5 (N=1254)	1.1 (N=2235)	1.1 (N=1714)	1.7 (N=381)	1.2 (N=2095)	1.7 (N=997)	0.6 (N=1238)	1.1 (N=2235)

N= total number of observations

Table 5.9 (continued) – Percentage of male adolescents reporting at least one sibling as a used and preferred source of sexual and reproductive health information, by current schooling status, age group, and residence, 2004 National Survey of Adolescents

Male Adolescents									
	Age Group			Current Schooling Status			Residence		
	<i>12-14 years</i>	<i>15-19 years</i>	<i>Total Percentage</i>	<i>In-school</i>	<i>Out-of-School</i>	<i>Total Percentage</i>	<i>Urban</i>	<i>Rural</i>	<i>Total Percentage</i>
Topic: Source of STIs or HIV/AIDS information									
Brother	4.0 (N=981)	4.8 (N=1254)	4.4 (N=2235)	3.7 (N=1714)	4.8 (N=381)	3.9 (N=2095)	3.7 (N=997)	5.1 (N=1238)	4.4 (N=2235)
Sister	1.8 (N=981)	1.4 (N=1254)	1.6 (N=2235)	1.7 (N=1714)	1.5 (N=381)	1.7 (N=2095)	2.1 (N=997)	1.2 (N=1238)	1.6 (N=2235)
Any Sibling	4.9 (N=981)	5.5 (N=1254)	5.2 (N=2235)	4.5 (N=1714)	5.7 (N=381)	4.7 (N=2095)	4.7 (N=997)	5.7 (N=1238)	5.2 (N=2235)
Topic: Preferred source of STIs or HIV/AIDS information									
Brother	1.1 (N=981)	0.7 (N=1254)	0.8 (N=2235)	0.9 (N=1714)	0.1 (N=381)	0.8 (N=2095)	0.8 (N=997)	0.9 (N=1238)	0.8 (N=2235)
Sister	0.7 (N=981)	0.3 (N=1254)	0.5 (N=2235)	0.6 (N=1714)	0.0 (N=381)	0.5 (N=2095)	0.9 (N=997)	0.1 (N=1238)	0.5 (N=2235)
Any Sibling	1.6 (N=981)	0.8 (N=1254)	1.1 (N=2235)	1.3 (N=1714)	0.1 (N=381)	1.1 (N=2095)	1.4 (N=997)	0.9 (N=1238)	1.1 (N=2235)
Topic: Encouragement to abstain from sex									
Brother	10.8 (N=295)	12.4 (N=539)	11.9 (N=834)	11.4 (N=666)	12.0 (N=150)	11.5 (N=816)	14.0 (N=450)	9.4 (N=384)	11.9 (N=834)
Sister	5.8 (N=295)	5.7 (N=539)	5.6 (N=834)	5.6 (N=666)	6.0 (N=150)	5.6 (N=816)	8.4 (N=450)	2.3 (N=384)	5.6 (N=834)
Any Sibling	13.5 (N=295)	14.9 (N=542)	14.4 (N=837)	13.7 (N=671)	16.0 (N=150)	14.0 (N=821)	17.6 (N=450)	10.8 (N=388)	14.4 (N=838)

N= total number of observations

5.4. – Siblings as proponents of sexual abstinence

Siblings were the third most commonly cited groups of persons to encourage adolescents to abstain from sex by adolescents who participated in the survey. Of the 14% of males who reported that a sibling had encouraged them to abstain from sex, a larger proportion reported that a brother had done so (Tables 4.1 and 5.5). Likewise, of the 22% of females who indicated that a sibling had encouraged them to abstain from sex, a larger proportion reported that a sister had done so (Tables 4.1 and 5.6). National patterns also show that older adolescents and those who were out of school were more likely to report that a sibling had encouraged them to abstain from sex. While there was no obvious difference by females' residence, a higher proportion of urban males reported that a sibling had encouraged them to abstain compared to rural males. Adolescents' narratives indicate that siblings discussed sexual abstinence in terms of pregnancy prevention (as was pregnancy prevention discussed in terms of sexual abstinence):

Interviewer: How do other people think about you?

Respondent: I don't know what they think about me.

Interviewer: What of your sister?

Respondent: She says I shouldn't have sexual intercourse or I'll get pregnant.

Female, 13 years, out-of-school, urban

Interviewer: Has anyone told you not to have sex?

Respondent: Yes. My brother, he warned me not to bring any pregnant lady home with me.

Male, 14 years, out-of-school, urban

Furthermore, adolescents' narratives provided insight into how siblings can use their own circumstances to urge adolescents to abstain from sex. In the excerpt below, the

adolescent's sister had a child out of wedlock and conveyed her unhappiness. The latter, presumably, had an effect on the adolescent's intended sexual debut:

Interviewer: Has anyone pressured you not to have sexual intercourse?
Respondent: Yes. My sister. She said that I should be careful not to get pregnant because she's done that and she's not happy.
Interviewer: Why have you not had sex before?
Respondent: I am afraid of AIDS and getting pregnant.
Interviewer: When do you expect to have sexual intercourse for the first time?
Respondent: When I'm old and I get married.

Female, 14 year, out-of-school, urban

Encouragement to abstain from sex was also discussed in terms of incentives and benefits, illustrated by Theresa's story (see 'Inside Look' 5.2).

Inside Look 5.2:

Sisters offering tangible incentives for delaying sex

Theresa, a 19-year old in-school female, learned about puberty from her teachers and an older sister. According to her, this information prepared her for the physical and behavioral changes she was to experience.

Although she had initiated a non-sexual relationship when she was 15 years old, she ended it three years later. Theresa explained that her sisters, sister-in-law, mother, pastor, and friends had all strongly encouraged her to abstain from sexual activity.

What's more, Theresa's sisters offered her the opportunity to visit them abroad if she remained a virgin until marriage. Her sister-in-law had also discussed the benefits of sexual abstinence in terms of delayed gratification in that Theresa would have much more to look forward to with her future husband.

Although the thought crosses her mind once in a while and she is sometimes tempted to be in an intimate relationship, Theresa has practiced caution so far and is very happy with her decision. According to Theresa, she expects to have sex for the first time on her wedding night.

Table 5.10 – Percentage of female adolescents reporting at least one sibling as a used and preferred source of sexual and reproductive health information, by current schooling status, age group, and residence, 2004 National Survey of Adolescents

Female Adolescents									
	Age Group			Current Schooling Status			Residence		
	<i>12-14 years</i>	<i>15-19 years</i>	<i>Total Percentage</i>	<i>In-school</i>	<i>Out-of-School</i>	<i>Total Percentage</i>	<i>Urban</i>	<i>Rural</i>	<i>Total Percentage</i>
Topic: Discussed sex-related matters									
Brother	2.3 (N=960)	4.2 (N=1228)	3.4 (N=2188)	3.1 (N=1543)	4.4 (N=450)	3.4 (N=1993)	3.7 (N=1068)	3.1 (N=1120)	3.4 (N=2188)
Sister	9.1 (N=960)	13.3 (N=1228)	11.4 (N=2188)	11.9 (N=1543)	11.9 (N=450)	11.9 (N=1993)	13.8 (N=1068)	9.2 (N=1120)	11.4 (N=2188)
Any Sibling	10.2 (N=961)	15.5 (N=1234)	13.2 (N=2195)	13.3 (N=1544)	14.4 (N=456)	13.5 (N=2000)	15.6 (N=1072)	10.9 (N=1123)	13.2 (N=2195)
Topic: Source of contraceptive information									
Brother	0.9 (N=807)	1.8 (N=1164)	1.4 (N=1971)	1.2 (N=1397)	1.7 (N=432)	1.3 (N=1829)	1.6 (N=1027)	1.2 (N=944)	1.4 (N=1971)
Sister	3.0 (N=807)	4.8 (N=1164)	4.0 (N=1971)	3.8 (N=1397)	4.6 (N=432)	4.0 (N=1829)	5.0 (N=1027)	3.0 (N=944)	4.0 (N=1971)
Any Sibling	2.8 (N=961)	5.3 (N=1234)	4.2 (N=2195)	4.0 (N=1544)	4.6 (N=456)	4.1 (N=2000)	5.4 (N=1072)	3.1 (N=1123)	4.2 (N=2195)
Topic: Preferred source of contraceptive information									
Brother	0.4 (N=757)	0.3 (N=1115)	0.3 (N=1872)	0.3 (N=1326)	0.4 (N=409)	0.4 (N=1735)	0.4 (N=980)	0.2 (N=892)	0.3 (N=1872)
Sister	1.7 (N=757)	3.0 (N=1115)	2.4 (N=1872)	2.3 (N=1326)	2.9 (N=409)	2.4 (N=1735)	3.6 (N=980)	1.2 (N=892)	2.4 (N=1872)
Any Sibling	1.4 (N=961)	2.8 (N=1234)	2.2 (N=2195)	2.1 (N=1544)	2.6 (N=456)	2.2 (N=2000)	3.5 (N=1072)	0.9 (N=1123)	2.2 (N=2195)

N= total number of observations

Table 5.10 (continued) – Percentage of female adolescents reporting at least one sibling as a used and preferred source of sexual and reproductive health information, by current schooling status, age group, and residence, 2004
National Survey of Adolescents

Female Adolescents									
	Age Group			Current Schooling Status			Residence		
	<i>12-14 years</i>	<i>15-19 years</i>	<i>Total Percentage</i>	<i>In-school</i>	<i>Out-of-School</i>	<i>Total Percentage</i>	<i>Urban</i>	<i>Rural</i>	<i>Total Percentage</i>
Topic: Source of STIs or HIV/AIDS information									
Brother	2.1 (N=961)	2.6 (N=1234)	2.4 (N=2195)	2.4 (N=1544)	2.2 (N=456)	2.4 (N=2000)	2.4 (N=1072)	2.3 (N=1123)	2.4 (N=2195)
Sister	3.6 (N=961)	4.5 (N=1234)	4.1 (N=2195)	4.3 (N=1544)	3.7 (N=456)	4.2 (N=2000)	5.3 (N=1072)	2.9 (N=1123)	4.1 (N=2195)
Any Sibling	4.6 (N=961)	5.4 (N=1234)	5.0 (N=2195)	5.1 (N=1544)	4.9 (N=456)	5.0 (N=2000)	6.0 (N=1072)	4.2 (N=1123)	5.0 (N=2195)
Topic: Preferred source of STIs or HIV/AIDS information									
Brother	0.7 (N=961)	0.4 (N=1234)	0.6 (N=2195)	0.6 (N=1544)	0.5 (N=456)	0.6 (N=2000)	0.6 (N=1072)	0.5 (N=1123)	0.6 (N=2195)
Sister	1.7 (N=961)	1.5 (N=1234)	1.6 (N=2195)	1.4 (N=1544)	2.6 (N=456)	1.6 (N=2000)	2.4 (N=1072)	0.9 (N=1123)	1.6 (N=2195)
Any Sibling	1.9 (N=961)	1.6 (N=1234)	1.7 (N=2195)	1.6 (N=1544)	2.6 (N=456)	1.8 (N=2000)	3.5 (N=1072)	0.9 (N=1123)	1.7 (N=2195)
Topic: Encouragement to abstain from sex									
Brother	8.6 (N=371)	10.2 (N=502)	9.5 (N=873)	9.4 (N=679)	9.5 (N=158)	9.4 (N=836)	10.4 (N=470)	8.4 (N=404)	9.5 (N=874)
Sister	18.6 (N=371)	19.5 (N=502)	19.1 (N=873)	19.1 (N=679)	20.3 (N=158)	19.4 (N=836)	18.9 (N=470)	19.3 (N=404)	19.1 (N=874)
Any Sibling	21.6 (N=371)	22.4 (N=505)	22.0 (N=876)	21.7 (N=681)	23.4 (N=158)	22.1 (N=839)	21.7 (N=470)	22.4 (N=407)	22.0 (N=877)

N= total number of observations

5.5. – Help with health problems

Discussing adolescents' health-seeking behaviors, whether real or intended, can help in better understanding the health problems that adolescents face and how they respond to them. As shown in Chapter 4, adolescents often sought moral and financial support from their parents or opted for self-medication. While self-medication was a first step in treatment, for a number of adolescents this was a way to circumvent the prohibitive costs associated with seeking treatment at a health facility. In some cases, adolescents were also able to mitigate the burden of these costs thanks to their sibling's profession:

Interviewer: Where do you go when you fall sick?

Respondent: I go to the Okonfo Anokye hospital in Kumasi. It is because I have a brother who works there so the cost is moderate.

Male, 16 years, in-school, urban

Yeast infections were the most common reproductive health issue reported by females, an infection that is referred to in Ghana as 'white' and often attributed to the excess consumption of sugary products. While most of females mentioned that they had informed their mother about their reproductive health issue, a number of them also informed their siblings:

Respondent: Yes. I once had 'white'.

Interviewer: Who did you talk to?

Respondent: My sister. [She] told me that it was because I like taking "sweet things."

Interviewer: How did you treat it?

Respondent: I did not do anything it went by itself.

Female, 16 years, out-of-school, urban, street child

Siblings were also helpful in providing treatments for general ailments:

Respondent: A very long time ago. I had a skin disease like heat rashes. [...]

Interviewer: What did you do first?

Respondent: My sister used lime and other things in my skin. It happened on five occasions.

Female, 13 years, out-of-school, urban

Respondent: Somewhere last year, I was down with fever. I went to buy drugs from the chemist shop and also my sister boiled some herbs for me.

Female, 17 years, out-of-school, urban

5.6. – Social learning and differentiation

The results detailed up to this point offer evidence that adolescents do directly communicate and interact with their siblings, that adolescents do regard siblings as sources of information about sex-related matters such as puberty, intimate relationships, preventing pregnancy, STI, and HIV/AIDS as well as sources of support for real and intended health problems. These findings are in accordance with the notion that siblings serve as agents of sexual and gender socialization, teachers, companions, and confidants. As discussed in Chapter 2, theories of sibling relationships also suggest that social learning can operate indirect ways and that adolescents may look to emulate their siblings' behavior or differentiate themselves altogether. Differentiation can also be exhibited when siblings occupied markedly different niches in the family. The following sections explore the less overt ways in which adolescents revealed their learning mechanisms.

5.6.a. Social learning from opportunity and exposure. Siblings, particularly younger ones, tend to learn from older siblings by having the opportunity to witness and/or by exposure to the activities that their older siblings engage in. Norms are

reinforced through opportunity and exposure. This theme emerged in both the FGDs and IDIs when adolescents discussed the indirect ways in which they learned about sexual and reproductive health:

Interviewer: Has anyone talked with you about preventing pregnancy?
Respondent: Not directly. But it was one of the things that my sister and her friends used to discuss and I overheard some of the things that they were discussing.[...] They said it is when you sleep with a man that you become pregnant. If you do not sleep with a man you do not get pregnant.

Female, 14 years, out-of-school, urban

Interviewer: When you experienced these body changes, how was your reaction towards the opposite sex and females as well?
Respondent: You know I've always been in a mixed school, with boys around and my brothers as well, so I even learn more at home than in school about boys, so it did not change much.

Female, 19 years, in-school, urban

Respondent: Nobody told me I observed it from my elder sibling before I also experienced it.

Interviewer: Did you feel you were grown when you saw these changes?

Respondent: No, I knew I was becoming an adult.

Male, 18 years, in-school, urban

In the male focus groups with younger adolescents, indirectly learning about sexual and reproductive health by accompanying older siblings arose on multiple occasions, as depicted here:

J.K.: Some of us got some information when we accompanied our brothers and sisters to seek for health services from doctors.

Eugene: I once accompanied my sister to hospital. There, the doctor talked to her about the things that she should do if she does not want to become pregnant.

Focus Group M1; male, 14-16 year olds, in-school, rural

Suleman: Sometimes we accompany our brothers and sisters to hospital to seek sexual and reproductive health services such as for abortion. Some of us have not personally sought any service with regards to abortion but some of our friends and brothers have done so.

Amidu: As we said earlier we are still young to use contraceptive methods. However, health workers do come and explain the use of some of the methods to our brothers and sisters.

Focus Group M2; male; 14-16 year olds; out-of-school; rural

Opportunity and exposure were not always welcome, as exemplified in the case of a female adolescent. Although she had found communication with her sister about pubertal changes useful, she also described her reaction to the information (here ‘shy’ connotes embarrassment and ‘spoiled’ insinuates being overly conscious of one’s sexuality):

Interviewer: Okay, but before that who taught you [about physical changes]?

Respondent: My elder sister because I was still in the same room with her and I was always asking questions about it.

Interviewer: How did you find the talk?

Respondent: It was useful, but sometimes I felt shy, I thought she was spoiling me.

Female, 19 years, in-school, urban

Overlapping social networks between siblings also provided the opportunity to meet boyfriends/girlfriends:

Interviewer: Do you have a boyfriend?

Respondent: Yes, I do. He is 25 years old. He is a cobbler.

Interviewer: How did you come to know each other?

Respondent: My brother brought him there to learn shoe making and I saw him.

Female, 15 years, out-of-school, urban

In the event that they would experience a reproductive health issues, some adolescents referred to the steps their sibling had taken in similar situations:

Interviewer: So let's say you get 'white' what will you do?
Respondent: My sister had it, and she use to put salt in warm water and wash her vagina with it.

Female, 14 years, in-school, urban

5.6.b. Social learning by differentiation. Some adolescents expressed their intention to differentiate themselves from their siblings. The narratives of two females exposed the impact of siblings' experiences can have on adolescents. One discussed her intention to avoid a premarital birth:

Interviewer: Do you see young people who give birth before marriage?
Respondent: My sister is an example. [...] I've always hoped not to do that and I know I won't do that.
Interviewer: What makes you think that way?
Respondent: I think that way because it's not nice and as such I will destroy my life. [...]. I don't have a boyfriend because he would want to have sex with me.
Interviewer: What of pregnancy, are you not afraid to be pregnant?
Respondent: Yes I am. That's why I want to marry before I have sex. I do not want to give birth before I marry.

Female, 14 years, out-of-school, urban

The second narrated how she had not yielded to a boyfriend's pressure to have an abortion, following her sister's fatal experience (see 'Inside Look 5.4'):

Respondent: He came to my place and said that he had not seen me for a long time and that was why he came to visit me to see how I was faring. It was then that I told him that I was pregnant. When I told him he said I should go and abort it; but when I was young, one of my sisters did that and she died so I told him that could not abort it. When I said that he told me that then he was not going to accept responsibility for the pregnancy. We quarreled and he left the place and since then I have not gone to his place.

Female, 16 years, out-of-school, urban, street child

5.6.c. Social learning by modeling. Research studies have shown that adolescents use their sibling as comparative models. During their in-depth interviews, a notable proportion of adolescents expressed that they most wanted to be like their sibling. Four sub-themes emerged out of the reasons adolescents provided for their admiration and/or aspiration to emulate a sibling (Figure 4.8). Adolescents admired their sibling's positive behavior:

Respondent: I want to be like my sister because she behaves well.
Female, 13 years, out-of-school, urban

Respondent: Her [sister's] way of life is good and she has been able to keep herself away from risky behaviours that other girls engage in.
Female, 14 years, out-of-school, rural

In the same way, adolescents explained that they sought to model their sibling's character or qualities:

Respondent: He [brother] is humble and that is why I want to be like him.
Female, 14 years, out-of-school, rural

Respondent: I want to be like [one of my sisters] because I like her lifestyle; she is very humble.
Female, 18 years, out-of-school, urban

Third, adolescents discussed their desire to emulate their siblings' achievements or accomplishments in life:

Interviewer: Her marriage is very peaceful so I would like my marriage to be like hers.
Female, 17 years, out-of-school, urban

Respondent: I want to be like my sister. She sells things to take care of her husband and children.
Female, 19 years, out-of-school, rural

Other achievements or accomplishments that adolescents aspired to included being rich, self-sufficient, and/or educated like their siblings. The narratives of adolescents, most of whom were from urban areas, highlighted the inter-relatedness of these achievements. Living abroad was itself considered a measure of admirable success, but being educated or studying hard could also lead to moving abroad and enjoying a successful life. Moreover, being rich was also tied to moving abroad, becoming married, having a successful job, and being independent:

Respondent: One of my sisters who married and the husband took her to USA. [...] Because she is now rich.

Female, 13 years, out-of-school, urban

Respondent: My brother abroad. [...] Because he learnt very hard and someone helped him to travel abroad.

Female, 15 years, in-school, urban

As shown in Chapter 4, several out-of-school adolescents expressed their admiration for their peers in school. Similarly, some adolescents wanted to be most like their siblings who had successfully attained a certain level of formal education and were enjoying its advantages. The narrative of an 18-year old adolescent, who at the time of the interview was married and had a young child, brings to light the deep-rooted desire expressed by several out-of-school adolescents to return to school in the future (see ‘*Inside Look 5.3*’):

Respondent: [I want to be most]like my sister because she’s very educated and has gone far. This will help her go far in life. But as for me I can’t go far because I have not been educated like she has been educated.

Female, 18 years, out-of-school, urban

Inside Look 5.3:

Internalizing the consequences of early or premarital pregnancy

Gloria, an 18-year old female, dropped out of school as a result of early pregnancy and lives at home with her parents in an urban area. She spends most of her days at home caring for her son, whose father has claimed responsibility and initiated marriage formalities.

Even though Gloria learned about puberty from her mother when she was 15 years, she insists that the information was not useful because it occurred after she had given birth, when in her own words “it was too late.” Gloria also explained that although her mother and other relatives had discussed pregnancy prevention after she had given birth, they had addressed the subject in the presence of her other siblings. Gloria commented that her mother continuously reminds her that she should have waited for the right time to have a child.

When asked who she wanted to be most like, Gloria expressed that she wanted to be like her sister who had had the opportunity to continue her schooling and who was more successful as a result. Prior to giving birth, she and her child’s father conversed about the possibility of her returning to school. Gloria admits that caring for her son could present an obstacle in realizing that goal and in finding a job she would enjoy, like working at a communication center.

5.7. – Roles and expectations of siblings in the family and its functioning

Another important theme that emerged from adolescents' narratives was the expectation of siblings in the family and their role in its functioning. In general, older siblings were expected to provide and care for younger siblings, including financial support:

Interviewer: What do you want your life to be like in the next five years?

Respondent: I would like to learn a trade and settle to work so that I can help my siblings in future.

Female, 18 years, out-of-school, urban

Interviewer: What things do you hold most dear in your life?

Respondent: Education, that is why I have been praying that my elder brothers who are a little financially sound should have a change of mind and support me so that I can also continue my education again.

Male, 13 years, out-of-school, urban

Many young people who migrate to urban areas in search of gainful employment and improved livelihoods are usually expected to remit. The motive for their migration also means that many have to forgo the opportunity to attend school, usually as the expense of their younger siblings' educational pursuits. Opening up about her family's circumstances, Millicent's story personified the sacrifices that some adolescents have to make to fulfill their expectations as siblings and to keep the family functional (see 'Inside Look 5.4').

Inside Look 5.4:

Making sacrifices and learning from another sibling's fatal experience

Millicent is a 16-year old female, originally from the Eastern region. After her mother died and her father lost his job, she was faced with difficult life choices. Millicent suggested that her father allow her to come to Accra and find gainful employment. She dropped out of junior secondary school and traveled to Accra, with the intention of earning income so that she could support her father and help keep the rest of her siblings in school. In Accra, she took on menial jobs and lived with a woman who sold foodstuff on the street.

Millicent also began a relationship with an 18-year-old man. According to her, initially they used condoms during sex. They later had sex without condoms and she became pregnant. She did not think she could become pregnant at that particular time when they had sex without a condom because they had had sex without a condom before and she did not become pregnant. When she informed him of the pregnancy, he urged her to abort it. Millicent refused to do so since one of her sisters had died from having abortion.

Because she refused to abort the pregnancy, the boy also refused to accept responsibility for the pregnancy and her upkeep. Now living in an institution that provides shelter for pregnant girls on the street, Millicent hopes to continue selling goods on the street until she gives birth. Two of her main concerns were how she would be able to take care of herself and the baby after delivery.

Her intentions were to send her baby to her hometown to be raised by one of the older sisters so that can continue selling on the street, save enough money to continue supporting her siblings in school and to support herself as an apprentice dressmaker.

Taking care of younger children has predominantly been a female's role in the African family (Kayongo-Male and Onyango, 1984; Zukow-Goldring 1995). This female-centered role of caretaking was also apparent in some of the adolescents' narratives (as it was in Millicent's story):

Respondent: When I get up in the morning, I have to help my mother clean the house, wash bowls and cook food for my junior sisters. After that I take my books and continue with my studies.

Female, 15 years, in-school, rural

Interviewer: Why don't you perform any house duty?

Respondent: Well, I have sisters who are responsible for the household chores except when I decide to help them to fill our water container and even that is normally done after we have closed from school.

Male, 17 years, in-school, urban

Siblings also protected adolescents' best interests and acted to ensure their general well-being. For example, one adolescent's brother-in-law took it upon himself to discipline a boy who had tried to force himself on her:

Respondent: Okay I told only my sister's husband, because he was pressuring me to know why I have the bruises. [...] He went to the P&T [Post & Telecommunications] office and called the guy. He wanted to take him to the police but the manager promised that it would not happen again.

Female, 19 years, in-school, urban

Another form of protection was by raising alarm. The following excerpt reveals how one adolescent's sister-in-law intercepted her attempt at drinking Guinness, a bitter alcoholic unmalted barley drink believed by some to be an abortifacient when mixed with toxic ingredients. When a young woman clandestinely ingests alcoholic beverages, it raises a red flag to the discerning observer:

Interviewer: Was your sister aware that you were pregnant when you got to Accra?

Respondent: No, she was not aware until one day when I bought another Guinness and I was about to take it when my brother's wife saw me and raised an alarm. My sister then heard it.

Female, 14 years, out-of-school, urban, street child

5.8. – Chapter summary

Having already ascertained the contribution of other stakeholders to adolescents' sexual and reproductive health knowledge, attitudes, behaviors, and decision-making, this chapter honed in on the role of siblings in these domains.

On average, adolescents who were surveyed had 3.3 siblings. The mean number of older siblings was 1.1, with about a third of the sample having at least one older sibling. Roughly 7% had no siblings and 42% were the oldest. The importance of birth order became apparent in two ways: (1) a substantial proportion of adolescents who participated in the FGDs and IDIs made references to their older siblings and (2) the likelihood of communicating with a sibling about se-related matters was higher among adolescents who had at least one older sibling. The significance of the gender composition of sibling dyads was also evident in the proportion of female adolescents who reported communicating with a sister across all topics of interest as well as the proportion of males who reported communicating with a brother.

Survey data indicate that some 11% of adolescents reported communicating with their sibling about sex-related matters and 18% indicated that a sibling had explicitly encouraged them to abstain from sex. Although communication about sexual abstinence can be regarded as sex-related matter, these two topics were treated

separately in the PNG survey as were questions regarding communication about pregnancy prevention and STIs/HIV/AIDS. Separating these topics could explain the differences in the proportions.

Adolescents aged 15-19 years were significantly more likely to communicate with a sibling about sex-related matters than were younger adolescents (12-14 years). Indeed, older adolescents were about two times more likely than younger ones to communicate with a sibling after other socio-demographic characteristics were accounted for. Although the effect of residence on the likelihood of communication with a sibling differed for males and females, adolescents from rural areas were significantly less likely to communicate with a sibling about sex than urban adolescents.

This chapter went further to explore patterns of communication about sex-related matters among adolescents who had at least one older sibling. The effect of age became even more pronounced in this reduced sample. Among males, older adolescents were more than three times more likely to communicate with a sibling than younger adolescents. Also, males who were not in school were 72% less likely to communicate with a sibling than those who were in school. Further analyses are required to help explain the differences between these groups, but it is possible that males who are out-of-school spend less time at home and are more likely to rely more on their friendship networks when discussing sex-related matters.

Among females, older adolescents were 52% more likely to report communication with a sibling than younger adolescents and rural females were 34%

less likely than urban females communicate with an older sibling, when these characteristics were controlled for together. Further analyses are needed to help explain the differences between females from urban and rural areas.

While survey data indicated that smaller proportions of adolescents communicated with siblings about STIs, HIV/AIDS, and pregnancy prevention and even smaller proportions regarded sibling as preferred sources (especially when compared to the media, teachers or health care providers, parents, and friends), data from the FGDs and IDIs show that the content of siblings' information and messages mirrored that which adolescents receive from other sources. Adolescents' narratives and dialogue reveal that siblings mainly advocated for sexual abstinence and pregnancy prevention. These data also highlighted the role of siblings as advisors and confidantes, particularly as it pertained to intimate relationships and when seeking treatment for health problems. In addition, adolescents' narratives helped disclose their reasons for preferring or trusting their siblings, including a sibling's gender, experience, knowledge, and the nature of their relationship.

Qualitative data provided evidence of learning mechanisms by virtue of communication and interactions with siblings. Social learning and differentiation between siblings were also evident in adolescents' narratives. The theme of opportunity and exposure emerged from both the FGDs and IDIs as adolescents discussed the indirect ways in which they learned about sexual and reproductive health from their siblings. Such opportunity and exposure came by way of observation, overhearing conversations, accompanying older siblings to health facilities, and by

being aware of the activities and behaviors that older siblings engaged in. The FGDs and IDIs also offered perspectives as to why siblings may sometimes not be regarded as preferred or trusted sources of health information and why siblings may not be aware of adolescents' relationships. Dialogue from a male focus group demonstrated how siblings' attitudes and behaviors could sometimes hinder adolescents' learning about sexual and reproductive health matters. Sibling differentiation also emerged in some adolescents' narratives as they discussed their intentions to avoid repeated events in the family, including a premarital birth and a fata abortion. Lastly, adolescents' narratives provided evidence of observational learning by their desire to emulate the attitudes, behaviors, and accomplishments of their (older) siblings.

Adolescents' narratives about their major concerns sometimes led to a discussion regarding their family circumstances as well as the roles and expectations of siblings, which in some cases involved making personal sacrifices and providing financial support to other members of the family. In the next chapter, I discuss the strengths and implications of my general findings as well as the limitations of this dissertation study.

CHAPTER 6

DISCUSSION AND CONCLUSIONS

Even though sibling relationships can be one of the longest individuals will experience in their lifetime (Cicirelli 1991, 1995), communication and interactions between siblings has generally been understudied. This is in contrast to the wealth of research examining adolescent communication and interactions with parents and friends. In this chapter, I discuss the findings from my dissertation study which sought to examine Ghanaian adolescents' sources of sexual and reproductive health information as well as their communication and interaction with siblings. I also offer concluding insights and propose policy implications and recommendations for future research.

Findings from this study are a synthesis of three related data sources collected as part of a larger study: 16 focus group discussions (FGDs), 100 in-depth interviews (IDIs), and a nationally representative survey all conducted among 12-19 year old males and females in Ghana. Known as *Protecting the Next Generation: Understanding HIV Risk Among Youth* (PNG) Project, the larger study was also carried out in Burkina Faso, Malawi, and Uganda to raise awareness of adolescents' sexual and reproductive health needs regarding STIs/HIV/AIDS and unintended pregnancy. My findings add to the literature by considering how sibling interactions and relationships are linked to adolescent development in general, but also their sexual reproductive knowledge, attitudes, and behaviors, in a non-Western context.

The next section presents a summary of this study's findings according to the research questions and hypotheses put forth.

6.1. – *Most frequently cited sources of information*

This dissertation study sought to investigate adolescents' most frequently cited sources of sexual and reproductive health information. Data from all three sources confirmed that adolescents received information about sex-related matters, STIs/HIV/AIDS, as well as pregnancy/contraceptives from a range of sources namely the media, teachers, health care providers, parents, friends, and siblings.

Hypothesis 1a: I hypothesized that the media would likely be the most frequently mentioned by adolescents, considering the high proportion of Ghanaians who have access to a radio as well as far-reaching health and social media campaigns. National data revealed that both males and females, the media was the most popular source of information for pregnancy prevention and STI/HIV/AIDS information. Contrary to my expectations, however, teachers or health care providers were the most frequently cited as *preferred* sources of sexual and reproductive health information. Also, parents were the most often cited source of encouragement to abstain from sex among males and females, an expected finding.

Hypothesis 1b: I hypothesized that given their likely exposure to sex education in schools, adolescents who were attending school would most frequently report teachers or health care providers as sources of health information than those out of

school. Survey data substantiate this hypothesis. Findings from the IDIs also confirm that those who were in school had greater exposure to sex education in the classroom and from health care providers who visited their schools. Adolescents placed emphasis and value on the professional and technical expertise teachers and health care professionals. The latter may explain why fewer Ghanaian adolescents cited their siblings as used, preferred, and trusted sources of pregnancy prevention and STI/HIV/AIDS information.

Hypothesis 1c: I hypothesized that adolescents from rural areas would be more likely to cite non-formal channels of communication including parents, friends and siblings. My findings did not support this hypothesis. Consistently higher proportions of adolescents from urban areas reported the media, teachers or health care providers, parents, friends, and siblings as sources of information across all six topics covered in the survey. This finding was surprising since I expected adolescents to rely more heavily on their family members because traditional and cultural values that emphasize family tend to be more pronounced in rural areas in Ghana (Awusabo-Asare 2004; Ampofo 2001).

6.2. – *Nature and timing of information*

This dissertation study also sought to examine how the timing and nature of information provided by siblings differed from that of other sources.

Hypothesis 2: I hypothesized that the accuracy of the information provided by siblings would not differ much from that provided by other sources. I also hypothesized that siblings, like friends, would tend to convey sexual and reproductive health information in more palatable ways than would the adults in their lives. Indeed, results from the FGDs and IDIs indicate that the timing and nature of the information shared by siblings were similar to what adolescents received from teachers, health care providers, parents, friends, and siblings. For instance, when communicating about puberty, all sources emphasized physical and behavioral changes, the transition to adulthood, involvement with the opposite sex, and personal hygiene. These sources also stressed appropriate behavior towards the opposite sex to avoid early or premarital pregnancy and HIV infection as well as sexual abstinence before marriage. Furthermore, adolescents gave the same reasons for their preferring and/or trusting the information shared by siblings as they did for parents, teachers, health care providers, and friends. These reasons included older age, knowledge, personal experience, professional training, and the nature of their relationship.

Siblings discussed sexual abstinence in terms of delayed gratification and used their personal experiences with premarital pregnancy to deter their younger adolescent siblings from repeating history. Furthermore, siblings were generally supportive of adolescent's romantic and/or sexual relationships, although in some instances, siblings, parents, and friends were not aware of the relationship or did not offer any particular reaction when they were aware. Some adolescents also entered into intimate relationships with friends of their siblings.

Siblings were less likely to stress being faithful to one partner and using condoms or other contraceptives compared to sources such as health care professionals, teachers, and friends. Also, siblings did not discuss behavior towards persons living with HIV/AIDS, a subject predominantly addressed by the media.

In studies conducted in Kenya (Kiragu et al. 1996) and Cameroon (Rwenge 2000), adolescents were more likely to discuss their sexual experiences with their siblings. In the present study, roughly 5% of all adolescents surveyed reported that a sibling had communicated with them about pregnancy/contraceptives and STI/HIV/AIDS. A much smaller proportion of adolescents considered their sibling as preferred and trusted source of such information. Despite being infrequently reported as sources of such information by male and female adolescents, similar proportions of adolescents reported a parent and sibling as a source of information about pregnancy/contraceptives, and similar proportions named a friend and sibling as a preferred source of this information.

Narratives also show that sibling communication and interactions were more relevant in certain contexts (e.g. discussing sex-related matters such as pubertal changes, intimate relationships, and sexual abstinence) than in others (e.g. discussing pregnancy and STI/HIV/AIDS prevention). This selective nature of sibling communication and interaction has also been noted in other studies (e.g. Brody and Murry 2001; Soli et al. 2009; Corti 2009).

6.3. – Socio-demographic variation

Another question that this dissertation study sought to explore was whether adolescents' communication and interaction with their siblings varied by gender, age, school status, and residence as well as the effects of birth order. I expected that adolescents' communication patterns with siblings would show variation according to these socio-demographic characteristics.

Hypothesis 3a: I hypothesized that older adolescents would be more likely to consider engage in sexual behavior and thus, would tend to report more communication with siblings and other sources. Results from the survey confirm that adolescents' communication and interaction with siblings increased with age. Multivariate analysis revealed that age had the strongest effect on the likelihood of communicating with a sibling. Adolescents aged 15-19 years were about two times and significantly more likely to communicate with a sibling about sex-related matters than younger siblings. Additionally, older males were similarly at significantly higher odds of communicating with a sibling about sex than older females. Same patterns were evident among 15-19 year old males who had an older sibling. In IDIs, the majority of adolescents who discussed communicating and interacting with siblings were 15-19 year olds.

Hypothesis 3b: I hypothesized that adolescents who are out of school have limited exposure to a sex education curriculum and would be more likely rely on their older siblings for information about sexuality than those who are still in school. Multivariate analyses show that only when residence and age were controlled for

among males who had at least one sibling was there a significant difference by schooling status. Males who were out-of-school and had at least one older sibling were 62% less likely to communicate with their sibling. It is not clear what gives rise to these patterns so further analyses are needed to help explain the effect of schooling on males with older siblings, but also what potentially sets these males apart from their female counterparts. Further analysis could also test relationships between age, schooling status, and residence.

Hypothesis 3c: I also hypothesized that rural adolescents would be more likely to espouse traditional values that favor strong relationships with family members and as such would be more likely to indicate communication and interaction with their siblings. Survey data reveal that among male and female adolescents, those from rural areas were significantly less likely to communicate with a sibling as well as an older sibling about sex-related matters compared to urban adolescents. Rural females who had an older sibling were similarly significantly less likely to communicate with a sibling about sex-related matters, once schooling status and age group were accounted for. Narratives also show that relatively fewer adolescents who discussed communication and interacting with a sibling were from rural areas. The direction of these results is unexpected and requires further analysis.

Hypothesis 3d: Based on past empirical studies (e.g. Benin et al. 1984; Grotevant 1978; Slaby et al. 1975; Stoneman et al. 1986), I hypothesized that there would likely be higher instances of same-gender communication in the Ghanaian context. Findings from my study complemented the literature on sibling dynamics

mediated by their gender constellation. At the national level, a greater proportion of female adolescents stated that a sister had communicated with them about sex-related matters and encouraged them to abstain from sex. Likewise, a higher proportion of male adolescents reported that a brother had done the same, in both topics. The proportions of communication and interaction between female adolescents and a brother or male adolescent and a sister were comparable. These national trends were also supported in adolescents' narratives and dialogue, whereby communication and interactions between adolescent females and their sisters were the most frequent and were relevant across the majority of themes and subthemes that emerged from the IDIs. Communication and interactions between adolescent males and their brothers were the next most frequently mentioned, but relevant across fewer themes.

Hypothesis 3e: I hypothesized that adolescents would be more likely to discuss communication and interaction regarding sexual and reproductive health with an older sibling. Results from my study support the notion that younger siblings commonly look to older siblings for guidance and assume that older siblings are experienced (Rodgers et al.1992; Rowe and Gulley 1992). In the FGDs and IDIs, almost all adolescents referred to an older sibling when discussing communication and interactions. The majority of adolescents expressed that their older sibling had talked to them about sexual and reproductive health, although some clarified that they had initiated communication with their older siblings.

Nationally, approximately 7% of the adolescent sample had no siblings, about 42% were the oldest, and 29% had at least one sibling. Among adolescents who had at

least one older sibling, those aged 15-19 years were two times more likely to communicate with a sibling when compared to younger adolescents who had an older sibling. The odds of communicating with a sibling about sex-related matters were particularly high among 15-19 year old males who had an older sibling. The likelihood of communicating with a sibling about sex-related matters was significantly reduced for those out of school (particularly among males who were out of school) for those who had an older sibling. Older females who had older siblings were significantly more likely to communicate with a sibling about sex-related matters than younger females. Rural females who had an older sibling were also significantly less likely than their urban counterparts to communicate with a sibling about sex-related matters.

It is generally understood that younger siblings will observe and learn from their older siblings, but the opposite is equally plausible (Soli, McHale, and Feinberg 2009). An unexpected finding from the IDIs was the potential for younger Ghanaian adolescents to serve as sources of sexual and reproductive health information to their older siblings. The actions of a 14-year old male in the IDIs suggest that younger adolescents who are taught sexual education in school can, in turn, share valuable information with (older) siblings who are out of school or whose occupations involve some degree of risk-taking behaviors. How prevalent or unique the possibility of reversed sibling influence is in the Ghanaian context remains to be determined in future studies.

6.4. – *Social and observational learning*

Another line of inquiry in this dissertation study was whether adolescents' narratives revealed any evidence of social and /or observational learning specific to their communication and interactions with siblings.

Hypothesis 4: Stemming from their narratives about sibling communication and interaction, I expected that adolescents would shed light on direct and indirect learning mechanisms and provide support for the theories of social learning and sibling differentiation. Dialogue from the FGDs and narratives in the IDI affirmed that adolescents learned from their siblings about puberty, gender and sexual norms as well as ways to prevent early pregnancy and HIV infection. The role of siblings as agents of gender and sexual socialization (Adomako-Ampofo 2001; Kornreich et al. 2003; McHale et al. 2007; Whiteman, Becerra, and Killoren 2009) was evident in that older sisters taught female adolescents about proper hygiene and dressing during menstruation, while brothers taught male adolescents about expected behaviors towards females. The role of siblings was also apparent with the handful of adolescents who recommended that their younger siblings partake in initiation ceremonies to uphold culture and tradition, avoid stigma against females in the family, and instill moral behavior.

Social and observational learning was also manifested in less explicit ways. For example, social learning came in the form of opportunity to witness and/or through exposure to activities and behaviors that older siblings engaged in. As illustrated in the FGDs and IDIs, some adolescents learned about sexual and

reproductive health by overhearing older siblings' conversations and by observing older siblings' pubertal changes and behaviors. Other adolescents learned by differentiating their life experiences from that of their siblings' in order to avoid repeating history. Many adolescents also expressed a strong desire to emulate their older siblings' attitudes, behaviors, qualities/characteristics, and accomplishments, when they asked about their role models during the interview.

The meanings that adolescents attached to their siblings' advice, support, and personal experiences exposed observational and social learning mechanisms not often detected in quantitative data. Adolescents' narratives and dialogue provided important information about sibling relationships and relationship quality. Equally consistent with the literature on social learning, older siblings helped adolescents to navigate their transition to adulthood by serving as advisors and confidantes (.e.g. Fitzpatrick and Badzinski 1985; Gallagher et al. 2006; Goetting 1986; Howe et al. 2001).

Adolescents openly expressed how they heeded their siblings' advice about avoiding compromising encounters with the opposite sex, delaying the initiation of sexual activity and intimate relationships as well as focusing on academics. Other adolescents discussed their siblings' support in handling challenging or embarrassing situations such as dealing with a reproductive health issue. A few adolescents alluded to distant or disharmonious sibling relationships, explaining that they did not consider their siblings as preferred and/or trusted sources of sex-related information and that they had not informed their siblings about their intimate relationships. These findings are congruent with the literature on affective characteristics that influence the quality of sibling communication and interactions (e.g. Ardel and Day 2002; Brody, Stoneman,

and McCoy 1994; Brody 1998; Stormshak et al. 1996).

6.5. – *Family functioning*

Lastly, this dissertation study aimed to gain insight into the role of siblings in family functioning in the Ghanaian context.

Hypothesis 5: Based on ethnographic and sociological research conducted in Africa, I expected that adolescents would most likely refer to their role and/or their siblings' role in caretaking. The social, cultural, and economic roles of siblings were highlighted as adolescents discussed their family circumstances during their interviews. Older siblings were expected to provide support to younger siblings in several ways, including the payment of school fees. For some adolescents, this support came at the expense of their educational trajectory. Additionally, siblings (especially females) were expected to care for younger siblings at home, and sometimes, to raise a younger adolescent sibling's children. These findings are consistent with studies conducted in Ghana (e.g. Yeboah 2008; Anarfi and Antwi 1995) and other parts of Africa (Kayongo-Male and Onyango 1984). Another unexpected finding from adolescents' narratives regarding family functioning was the role of in-laws (i.e. the spouses of adolescents' older siblings) in discussing sexual and reproductive health and in protecting adolescents from undesirable circumstances, including unwanted sexual advances and an abortion attempt.

6.6. – Contributions of the present study

In contrast to studies that have focused on the role of parents, friends, and other stakeholders (e.g. health care providers, the media, and teachers) as important sources in the lives of adolescents, this dissertation study's findings contribute directly to research examining siblings as one of these stakeholders. Results from the FGDs, IDIs, and survey confirm that consequential communication and interactions occur between adolescents and their siblings.

Research on siblings has received little attention in the literature on family dynamics in contemporary Ghanaian society. My dissertation study serves a preliminary step towards: (1) understanding the contributions of Ghanaian siblings in shaping adolescents' sexual and reproductive health knowledge, attitudes, and behaviors; and (2) understanding characteristics of sibling communication and interactions as well as their similarities and differences between others within their microsystem.

The combination of quantitative and qualitative data used in the analyses helped to answer the research questions put forth in this study. Triangulating – bridging, connecting, and mixing – the multiple methods is an additional strength of this study as it provided a richer understanding of sibling communication and interactions among Ghanaian adolescents. Triangulation confirmed that siblings are sources of information regarding sex-related matters in general as well as pregnancy prevention and STIs/HIV/AIDS. Together, these sources also revealed that adolescents do not frequently report siblings as preferred sources of pregnancy prevention and

STIs/HIV/AIDS information. Yet, narratives from the IDIs and FGDs showed that adolescents trusted siblings' sexual and reproductive health information for the same reasons they trusted that of other sources. Similarly, the IDIs and FGDs revealed that adolescents were regarded as confidantes and sources of support in dealing with sensitive health issues. Lastly, the use of multiple sources helped to unearth particularities, including siblings as sources of communication about puberty as well as sources of advice about intimate relationships, as evinced in the IDIs.

The conceptual framework guiding this dissertation highlights a largely neglected aspect of research on adolescent development and health, namely the double role that adolescents play in the household as siblings who discuss sexual and reproductive health with each other. Data from the PNG national survey indicate that the adolescents in Ghana have an average of 3.3 siblings. The relative neglect of this topic to date has been unfortunate, since most adolescents in Africa have siblings from whom to learn and with whom to share information. It is imperative to recognize that even though adolescents *individually* receive sexual and reproductive health information from the same set of stakeholders, they are likely to be part of a family that includes other children and to communicate and interact with their siblings.

Research on protective processes suggests that each additional protective factor enhances an individual's ability to resist negative outcomes, reduce risk, and promote positive outcomes (Pollard, Hawkins, and Arthur 1999; Soli et al. 2009; Kowal and Blinn-Pike 2004; Mmari and Blum 2009). Overall, the findings from this dissertation study underline the additive or complementary role of siblings and support the

observation that siblings can impact adolescents' attitudes towards safe sex practices. My findings also highlight the need to integrate siblings as a target group in existing policies and programs concerned with the well-being of youth.

In the next section, I discuss some policy implications of this dissertation study's findings as well as programmatic recommendations.

6.7. – *Policy implications*

A primary objective of the PNG Project was to communicate the project's findings to stakeholders at national and international levels as well as inform and improve existing youth-related policies and programs (Kumi-Kyereme, Awusabo-Asare, and Biddlecom 2007). The present study's findings have implications for parents, planners of family-based and peer-based programs as well as policy makers concerned with healthy families.

Ghana's existing youth-focused policies make several assertions that can benefit from this dissertation's findings. For instance, the 1999 National Youth Policy (NYP) seeks to redress the erosion of traditional social support systems for youth and the weakened role of the family that lead to deviance, both which it cites as part of the major challenges that youth currently face (NYP, p. 6). The NYP also seeks to promote the sanctity of the family through the strengthening of the nuclear and extended families (NYP, p. 23). Furthermore, the objectives of the 2000 Adolescent Reproductive Health (ARH) Policy include the promotion of policies that will enhance

the development and implementation of adolescent sexual and reproductive health programs as well as programs that will guide adolescents to develop socially acceptable and responsible attitudes towards sex and sexuality (Section 6.0). The 2000 ARH Policy also acknowledges adolescents are the primary beneficiaries of the policy, but also secondary beneficiaries who influence the attitudes and behaviors of adolescents and who are involved in the socialization of youth in the community and provide services (Section 5.0). Yet, the ARH Policy cites only adults such as parents and guardians, teachers and school authorities, traditional, community, and religious leaders, health care providers, the media, and peers as secondary beneficiaries and completely neglects siblings as beneficiaries.

Both sets of policies disregard the subsystems that make up the family system and detract from the role of siblings, particularly older siblings, in adolescents' sexual and reproductive health-making. Given this lack of concrete directives regarding the family's subsystems in existing policies, one important implication is that programs and intervention are currently not designed to emphasize the relationships between adolescents and their siblings on one hand, and how the relationship between adolescents and parents can affect the flow of information between adolescents and their siblings. Existing policies should therefore seek to explicitly address the concurrent relationships within the nuclear family and urge adolescents to adopt safe and healthy behaviors that younger siblings can model after. Below are some recommendations for programs that can ensue when existing policies are revised:

6.8. – Program recommendations

- To my knowledge, there are presently no adolescent and/or family-centered programs in Ghana designed to directly address the role of siblings on adolescent development. My findings demonstrate that siblings should be considered an important target group, particularly in the areas of promoting healthy behaviors such as sexual abstinence. If such programs are to become more effective, an emphasis on positive communication between all members of the family should be strongly encouraged. Revamping current these programs to include a sibling component where positive sibling communication and interaction are encouraged, is likely to benefit overall family dynamics and processes.
- Older siblings should be made aware of the impact of their knowledge, attitudes, and behaviors on their younger siblings. Results from my study also highlight the intersections between gender, age, residence, and schooling status. Programs should pay particular attention to male adolescents who have older siblings, who are 15-19 years, and who are out of school. Most importantly, programs should endeavor to increase the levels of communication between siblings who live in rural areas, as the latter were found to be significantly less likely to share important information about sexual and reproductive health. These programs could take form of radio shows, behavior change campaigns, and plays in peer groups.

- With the high probability that adolescents will also be siblings, programs need to continuously emphasize this duality. This duality is also a call to practitioners and policy makers to meet the healthcare and informational needs of adolescents. Research has consistently exposed the gaps in adolescents' knowledge as well as the barriers they face in accessing health care (e.g. Biddlecom et al. 2007; Dehne and Riedner 2005; Meyer-Weitz et al. 2000; Temin et al. 1999). Programs should be geared towards equipping siblings to effectively communicate with younger siblings and to provide them with accurate information about sexual and reproductive health.

In the next section, I discuss the limitations of my dissertation study and propose future research directions.

6.9. – *Study Limitations*

The findings presented in this dissertation study should be interpreted with caution. Despite the rich data offered by the focus group discussions, the in-depth interviews, and the survey, undertaking a secondary analysis of these data sources presented several challenges and limitations.

- Solely relying on electronic transcripts was a drawback to this study. Access to the recorded interviews would have allowed for more precise contextualization of adolescents' narratives, especially when deriving meaning about sibling communication and interactions.

- The goals and scope of the original PNG study resulted in truncated data for some of the research questions this dissertation set out to answer. In the FGDs and IDIs, interviewers more often probed about the nature of adolescents' communication and interaction with parents, teachers, health care providers, and religious groups. Similar probing for siblings and friends was not a priority.
- Unlike the nationally representative data derived from the survey, the data from the FGDs and IDIs do not allow for generalizations. Thus, the sibling-related themes and subthemes that emerged from the qualitative data, but were not corroborated by the survey data (e.g. being a source of information about pubertal changes or being aware of intimate relationships), may not be representative of adolescents' experiences in Ghanaian families. Whiteman et al. (2010) assert that adolescents' reports of social learning and differentiation hinge on whether they like or even get along with their siblings in the first place. As such, adolescents who mentioned their siblings may have had pre-established circumstances that favored communication and interaction. These adolescents may also have been the ones who experienced extremes of sibling communication and interaction (positive or negative) or the ones who already place a high premium on familism and socio-cultural values (Soli, McHale, and Feinberg 2009; Updegraff et al. 2005; Whiteman et al. 2010).
- I assumed that when referring to their 'brother,' 'sister,' and/or 'sibling', adolescents were discussing an individual in their family unit to whom they are related through blood, kinship, or law, but not "siblings of choice". It should

also be noted that the files obtained from Guttmacher Institute did not include any information pertaining to operational definitions of adolescents' sources of information.

- Further limitations of both the original and secondary studies were recall bias and the reliance on self-reports. The latter precluded the opportunity to assess the knowledge, attitudes, and behaviors of the siblings that adolescents mentioned.
- My findings and conclusions are drawn from cross-sectional data that cannot take into account changes in family and sibling relationships over time. A related limitation is that it was not possible to ascertain whether siblings' message of sexual abstinence actually translated into protective behaviors for adolescents.
- The original data did not collect genetically relevant information. Hence, my analyses cannot speak to how sibling similarity or difference may be related to shared genetics (see e.g. Feinberg et al. 2003); Dunn and Plomin 1990; Dunn and Plomin 1991; Feinberg and Hetherington 2000; McHale, Bissell, and Kim 2009; Li, Cheng, and Swan 2003; Plomin and Daniels 1987; Rende et al. 2005; Rodgers, Rowe, and Buster 1999; Slomkowski et al. 2005).
- A final limitation of the present study is that I do not account for shared household and/or family characteristics and its effect on the likelihood of communication and interaction between siblings as well as the likely endogeneity of sibling behaviors (Weinstein and Thornton, 1989; Fox, 1981; Levy, 1989; Miller, 2002).

6.10. – *Future directions*

These limitations notwithstanding, the findings of this study accentuate the need for further studies on sibling communication and interactions in contemporary Ghanaian society. I propose some directions for future and innovative research:

- ***Sibling dynamics.*** The mixed-method approach used in this dissertation study highlighted the role of siblings in Ghana as proponents of sexual abstinence and as sources of support and advice for adolescents as they navigate their transition to adulthood. Future research would benefit from a focus on siblings to understand sibling dynamics in Ghana in greater detail. Such research could employ the *Sibling Relationship Questionnaire (SRQ)*, a commonly used instrument to measure sibling dynamics and assess the perception of sibling relationship quality (Furman and Buhrmester, 1985; O'Brien and Crick 1995).
- ***Residence.*** Multiple regression analyses reveal that rural adolescents are significantly less likely to communicate with a sibling. It is unclear from this study why rural adolescents differ from urban adolescents. Future research should continue to explore this relationship, particularly over time as well as its interaction with other characteristics such as schooling status.
- ***Sex composition.*** Both the survey data and IDIs suggest that female adolescents may communicate more with their sisters than do males with their brothers. The sibling dynamics among Ghanaian that occur as a result of similarity in gender merit further investigation. Another branch of investigation would be regarding cross-gender communication. It would also

be worth knowing more about the specific topics and subject matters that brothers tend to discuss with their sisters, and vice versa.

- ***Longitudinal research.*** Sibling relationships encompass several characteristics including communication, interaction, quality, and influence. Of these, sibling influence is the most complex to determine and measure especially because the remaining characteristics all contribute to the process of positive and/or negative influence. Furthermore, sibling influence is best assessed longitudinally. Researchers have called for collecting longitudinal data to tease apart the nonlinear associations between sibling influence processes and sibling relationship characteristics (e.g. Soli et al. 2009; Whiteman et al. 2010). Future research in Ghana should endeavor to directly capture these processes over time to help establish any unique contributions of siblings. Another need for longitudinal studies is to gauge the bi-directionality of observational and social learning, that is, from older to younger siblings and from younger to older siblings (Soli, McHale, and Feinberg 2009; Van Der Vorst et al. 2007; Whiteman et al. 2010). Investigating these processes over time need not be limited to quantitative studies. East and her colleagues, for example, collected qualitative data as part of a larger longitudinal study on family dynamics following an adolescent pregnancy between 1998 and 2009. In Ghana, similar qualitative studies could elucidate how social learning and differentiation can operate concurrently (e.g. adolescents imitating their brothers and sisters in certain domains, but differentiating themselves in other domains, as well as emulating certain siblings, but differentiating themselves from other siblings).

Longitudinal qualitative research should also be conducted on gender and sexual socialization that focus exclusively on the role of siblings in Ghana.

- ***Direct measurement.*** Some scholars (e.g. Whiteman, McHale, and Crouter 2007; Whiteman, Becerra Bernard, and McHale 2010; Whiteman, McHale, and Crouter 2007) have observed that the majority of studies on sibling relationships infer about the learning and differentiation processes. These scholars call for designing research studies that can *directly* measure reports of social learning and/or of sibling differentiation to better understand the conditions under which these processes occur. Future research in Ghana should include study designs which aim at direct measurement of these processes.
- ***Structural composition of family.*** Future research on siblings in Ghana should also include specific measures of other structural components of family, including age spacing and sibling size. While this dissertation study conducted preliminary analysis assessing birth order, future research and more refined variables are sorely needed. Besides capturing these measures quantitatively, future research should also include questions that address how these characteristics express themselves in the lives of siblings.

Research from Europe and Australia point to distinct experiences of middle-born children (Belsky et al. 1991; Kidwell 1982; Milne and Judge 2009; Saroglou and Fiasse, 2003). Likewise in Ghana, it would be beneficial to know for instance: whether middle-born children experience sibling communication and interaction differently because they have both older and younger siblings; whether middle-borns tend to leave it up to their older siblings to discuss

sexual and reproductive health with younger ones; whether middle-borns tend to be the ones to discuss this type of information with younger siblings, and whether middle-borns experience the same degree of cultural values such as familism and obligation as do their older and younger siblings. Since structural factors should not be treated as the sole explanatory variables when examining sibling relationships, future research should also examine the effect of individual characteristics such as temperament. Sulloway (1996) suggests that personality may be linked to birth order effects, personal achievement, and behaviors. It would be advantageous to investigate whether Ghanaian adolescents feel that different personalities affect the nature of their communication and interaction with siblings. If employing quantitative methods, future studies on sibling communication and interaction should examine the effects of these structural components by using statistical techniques such as multilevel modeling since parental characteristics, family structure, parent-child relationship, and family socio-economic status may potentially influence sibling-specific processes (O'Connor et al. 2001; Soli et al. 2009). Following the example of Soli et al., it would also be useful to test three-way interactions between birth order, family values, and sibling relationship quality among Ghanaian youth.

- ***Preventing repeat adolescent pregnancy in the family.*** National data indicate that roughly twelve percent of Ghanaian females and one percent of Ghanaian males between the ages of 15 and 19 years have ever had a child (Awusabo-Asare et al. 2006; GLSS 2008; GDHS 2008). Clinics and/or hospitals

providing antenatal care to pregnant adolescents should aim to collect relevant socio-demographic information about the adolescent's siblings. Such data would be invaluable to understand the effects of a teenage pregnancy on sibling communication and interactions in particular, and on family dynamics, in general. More importantly, such information would enable practitioners to target younger brothers and sisters and offer interventions to this sub-population which research finds to be at greater risk than younger siblings of non-pregnant adolescents (e.g. Diop-Sidibe 2005; East and Jacobson 2001; East and Kiernan 2001; East 1998; East 1996; East 1998; East, Reyes, and Horn 2007). Also worthwhile would be to extend research on the role of sisters in adolescent childbearing by replicating studies which have used survival analysis techniques to estimate the likelihood of childbearing among African adolescents whose sister(s) had given birth (see Munthree 2009 and Diop-Sidibe 2005).

- ***Two or more siblings.*** In the future, studies should include not only the reports of adolescents, but also the perspectives of a target sibling, and when possible, those of other siblings in the family (Kramer and Bank 2005). Such detailed investigations will help assess sibling communication and interaction across dyads that vary by gender and age intervals. These investigations will also benefit our understanding of similarities and differences between siblings' individual characteristics (Whiteman et al. 2010).

- ***Young adulthood.*** Future research could target university students who are in their second year or above to inquire about their sibling communication and interaction at the time of the interview, during their childhood, and then during their adolescent years. The emphasis on second year and above is that first-year students would likely not have enjoyed a full year of their new-found freedom, and as such may not have had the opportunity to properly reflect on the differences, if any, in their attitudes and behaviors. Such research could help elucidate turning points in the sibling relationship (Baxter and Bullis 1986; Baxter et al. 1999; Corti 2009) and the role that communication plays in the evolving relationship (Graham 1997). This research can also be extended to siblings in late adulthood.
- ***Between and within families.*** Future research on sibling communication and interaction in Ghana should seek to first conduct focus group discussions to garner information about siblings *between* families. Results from these discussions will provide a refined road map when conducting in-depth interviews to understand sibling relationships *within* families. At the quantitative level, within-family studies would have the advantage of controlling the unmeasured, but shared environments of siblings (Dick et al. 2000; Michalski and Shackelford 2001; Milne and Judge 2009).
- ***Siblings, parents, and peers.*** National data show that for certain sexual and reproductive health-related topics, the proportions of adolescents who reported communication with a sibling and a parent, on one hand, and communication with a sibling and friend, on the other, differed by five percentage points or

less (see Table 4.1). Additionally, the proportions of females who reported communication with a brother and a male friend were comparable, as were the proportions of males who reported communication with a sister and a female friend (results not shown). Future research in Ghana should aim to capture the linkages between adolescents and their siblings, friends, and parents as well as their changes over time. Existing studies provide templates from various disciplines that future researchers can borrow from to examine these relationships (see Duncan et al. 2001; Ardelet et al. 2002; Floyd and Parks 1995; McGue et al. 1995; Conger and Rueter 1996).

- ***Socio-economic status.*** While some adolescents discussed their family socio-economic contexts, it remains unclear how family socio-economic status can serve as a mediator for sibling communication and interactions. Furthermore, data from the 2006 GLSS national survey reveal that a quarter of Ghanaian households are headed by females-only, with higher proportions in urban areas outside of Accra (GLSS 2008). Based on assertions that sibling socialization is more prevalent in single-parent families with limited financial and social capital (e.g. Brody and Murry 2001; East and Jacobson 2000; Soli et al. 2009), it will be important that future research on siblings in Ghana include questions to measure and assess the effects of family socio-economic status.
- ***Genetic relatedness.*** Future studies in Ghana on family and/or siblings should seek to collect data on genetic markers. Understanding behavior based on shared genetics will vastly improve our understanding of social processes at the family level.

- ***Comparative research.*** Future research should draw on the multiple sources of data available from the PNG project to conduct similar studies on sibling communication and interactions in countries as diverse as Burkina Faso, Malawi, and Uganda. These sources of data will also allow for comparative research on communication and interactions between adolescents and their siblings, friends, and their parents in four African countries. Preliminary cross tabulations of sibling communication in these countries suggest differences that warrant further investigation. While similar proportions of adolescents in Ghana, Malawi, and Uganda reported that a sibling had talked with them about sex-related matters (11-13%), a lower proportion of adolescents in Burkina Faso (7%) reported the same. Additionally, the proportion of adolescents who reported a sibling as a source of contraceptives and STI/HIV/AIDS was highest in Uganda (8% and 13%, respectively), but lowest in Malawi (3% and 4%, respectively). Lastly, equivalent proportions of adolescents in Burkina Faso, Ghana, and Malawi reported that a sibling had encouraged them to abstain from sex (17-18%), compared to 22% of adolescents from Uganda who reported the same (see Appendix E).

6.11. – Conclusions

The role of siblings in adolescent development and in shaping adolescents' health-related knowledge, attitudes, and behaviors has received less attention in research, particularly among African adolescents. Yet, in many African countries and cultures, siblings are known to be socializing agents for their younger siblings in activities such as playing and caretaking (Kayongo-Male and Onyango 1984). Sibling socialization has mainly been examined at the childhood level, but a new crop of studies confirm that siblings continue to have an impact on each other during adolescence, a period characterized by physical, attitudinal, and behavioral changes. During this time, siblings may act as agents of gender and sexual socialization, as sources of sexual and reproductive health information, and as sources of support and advice. Research has also shown that in contexts as dissimilar as engaging in substance use and delaying sexual activity, the contribution of siblings can go above and beyond that of parents and friends.

The present study used data from focus group discussions, in-depth interviews, and a national survey conducted among 12-19 year old adolescents and showed that Ghanaian adolescents are most likely to receive sexual and reproductive health information from parents, health care providers, and teachers. Meanwhile, adolescents were more likely to initiate conversations about sexual and reproductive health with parents, friends, and siblings. The complementary data sources also demonstrated that reliance on siblings as sources of information depends on the context. Even though adolescents did not communicate with their siblings as frequently as they did with

other sources regarding about pregnancy prevention and STIs or HIV/AIDS, adolescents attach importance to their siblings' advice, support, and personal experiences regarding sex-related issues. Adolescents also regarded siblings as advisors and confidantes for matters such as intimate relationships.

The sexual and reproductive health of adolescents has taken center-stage in the global fight against HIV/AIDS and unintended pregnancy. Findings from this dissertation study underscore the need to conduct more research on the role of siblings in adolescent development as well as sibling communication regarding sexual and reproductive health, in Ghana and other African contexts. Integrating the roles of older siblings into existing adolescent and family-centered programs will likely improve their overall effectiveness.

Appendix A – In-depth interview dissertation study code manual

<i>Code</i>	<i>Description</i>
<i>(Personal) Experience with HIV/AIDS</i>	Having had an experience with HIV/AIDS, either personal or with a family member or knowing someone who had or died of HIV/AIDS.
<i>(Reproductive) Health Issues</i>	Having experienced a reproductive health issues, such as a yeast infection or a sexually transmitted infection.
<i>Abortion</i>	Describing an experience with abortion, either talking about it with a family member or friend, having had one, or having attempted having one
<i>Advice</i>	Receiving health or relationship advice
<i>Aspirations/Admiration</i>	Someone specific that adolescent aspires to become like or admires
<i>Birth Order</i>	Direct mention of whether brother, sister or sibling was older or younger
<i>Bro2Bro</i>	Male adolescent referring to brother
<i>Bro2FemaleCousin</i>	Male adolescent referring to female cousin
<i>Bro2MaleCousin</i>	Male adolescent referring to male cousin
<i>Bro2Sib</i>	Male adolescent referring to sibling (not specified)
<i>Bro2Sis</i>	Male adolescent referring to sister
<i>Brother'sPlace/Home</i>	Reference to visiting or being at brother's place/home as it relates to a health, romantic or sexual experience
<i>BrotherofFriend</i>	Reference to brother of adolescent's friend as it relates to a health, romantic or sexual experience
<i>Brothers</i>	All quotations related to brothers
<i>Caretaking</i>	Reference to taking care of brother, sister, or sibling
<i>Child/Children</i>	Reference to adolescent having a child or children
<i>Cousins</i>	All quotations related to cousins
<i>Cultural</i>	Reference to cultural influence, particularly on a health, romantic, or sexual experience
<i>Dead Family Member</i>	Reference to family members who have passed away
<i>Delayed Talk</i>	Reference to HIV/AIDS, pregnancy, or health-related talk that happened after an unintended outcome (e.g. pregnancy)
<i>Disabled</i>	Indication that adolescent is disabled
<i>Economic/Financial</i>	Reference to economic/financial situation that affects family situation and or a health, romantic, or sexual experience
<i>FacilitatorBro</i>	Reference to a brother playing a key role in facilitating a health, romantic, or sexual experience
<i>FacilitatorSis</i>	Reference to a sister playing a key role in facilitating a health, romantic, or sexual experience

Appendix A (continued) – In-depth interview dissertation study codebook

<i>Code</i>	<i>Description</i>
<i>Family Context</i>	Reference to how the adolescent's family context affects current conditions and or a health, romantic, or sexual experience
<i>Family Structure</i>	Description of family members and number of
<i>First-Born</i>	Reference to adolescent being a first-born, as well as its meaning and/or consequences
<i>FirstRelationship</i>	Reference to and description of adolescent's first relationship
<i>FirstSex</i>	Reference to and description of adolescent's first sexual experience
<i>ForcedSex</i>	Reference to forced and unwanted sexual experience
<i>FriendofBrother</i>	Reference to friend of brother as it relates to a health, romantic, or sexual experience
<i>FriendofSister</i>	Reference to friend of sister as it relates to a health, romantic, or sexual experience
<i>HIV/AIDSTalk</i>	Reference to someone having talked to the adolescent about HIV/AIDS-related matters
<i>HIVWorry</i>	Indication of being worried about HIV/AIDS
<i>How To Code?</i>	Quotations that are difficult to code/place
<i>Hypothetical RHI</i>	Reference to who an adolescent would refer to in the event of a reproductive health issue
<i>Incentive</i>	Reference to adolescent being given an incentive to engage in positive behaviors
<i>Influence Younger Sibs</i>	Indication of adolescent influencing his/her younger brother(s), sister(s) or sibling(s).
<i>Initiation Rites/Ceremony</i>	Reference to adolescent being involved in initiation rites and/or initiation ceremony
<i>Initiation/ CounselingRecommend</i>	Adolescent agreeing with recommending initiation rites/ceremony for a younger brother, sister, or sibling
<i>InitiationNOTRecommend</i>	Adolescent disagreeing with recommending initiation rites/ceremony for a younger brother, sister, or sibling
<i>InLaw</i>	All quotations related to in-laws
<i>InTheKnow</i>	Reference to family members and/or friends being aware of adolescent's romantic or sexual relationship
<i>Like Brother Like Sister</i>	Reference to adolescent equating (or not) certain individuals to brothers and sisters
<i>Living Arrangement</i>	Reference to who adolescent currently lives with
<i>Married</i>	Reference to adolescent being currently married
<i>Media Influence</i>	Reference to the influence of media on health-related knowledge, attitudes and behaviors

Appendix A (continued) – In-depth interview dissertation study codebook

<i>Code</i>	<i>Description</i>
<i>Menstruation</i>	Reference to adolescent's experience with menstruation
<i>Not Above and Beyond Sib</i>	Reference to adolescents who are only being cared for by brothers, sisters, or sibling (i.e. no parental or other adult family care)
<i>Not In The Know</i>	Reference to family members and/or friends being <i>not</i> being aware of adolescent's romantic or sexual relationship
<i>Not Relevant</i>	Quotations deemed not relevant, even though they included words of interest
<i>NoTrust</i>	Adolescent indicating that they didn't trust a source of information
<i>Nuance/Differentiation</i>	Reference to instances where there was a clear differentiation or nuance (e.g. when a brother talked to an adolescent about pregnancy, but the adolescent indicates that s/he trusts aunt's information)
<i>Only Child</i>	Reference to adolescent being an only child, as well as its meaning and/or consequences
<i>Orphan</i>	Reference to adolescent being an orphan, as well as its meaning and/or consequences
<i>Perception by Others</i>	Reference to how adolescents are perceived by family and/or community
<i>PregPrevTalk</i>	Reference to someone having talked to the adolescent about pregnancy-related matters
<i>Pressure2HvSex</i>	Reference to adolescent having been pressured to have sex (by someone specific)
<i>PressureNOT2HvSex</i>	Reference to adolescent having been pressured <i>not</i> to have sex (by someone specific)
<i>Pubertal Changes</i>	Reference to the changes adolescent went through during puberty or a description of changes adolescents generally go through
<i>PubertyTalk</i>	Reference to someone having talked to the adolescent about puberty-related matters
<i>QualityofRelationship</i>	Direct reference to the nature of relationship the adolescent has with family members
<i>Real Talk</i>	Adolescent indicating an actual two-way talk/conversation about HIV/AIDS and/or pregnancy
<i>ReasonsNoSex</i>	Adolescent's reasons for not engaging in sex and/or abstaining from sex
<i>Refugee</i>	Reference to adolescent being a refugee, as well as its meaning and/or consequences

Appendix A (continued) – In-depth interview dissertation study codebook

<i>Code</i>	<i>Description</i>
<i>Remand</i>	Reference to adolescent currently being in a remand institution, as well as its meaning and/or consequences
<i>Reverse Influence</i>	Indication of younger brother(s), sister(s) or sibling(s) influencing the adolescent
<i>Role of Brother in Family</i>	Reference to the role of brothers in family functioning
<i>Role of Cousin in Family</i>	Reference to the role of cousins in family functioning
<i>Role of In-Law in Family</i>	Reference to the role of in-laws in family functioning
<i>Role of Sister in Family</i>	Reference to the role of sisters in family functioning
<i>Second Abstinence</i>	Reference to indications that adolescent is currently abstaining, although s/he indicated having had sex before
<i>SexEver</i>	Indication of whether or not adolescents has had sex
<i>SibConversations</i>	Reference to actual conversations with siblings (different from ‘RealTalk’ in that this is an emergent theme, not the result of an interview question)
<i>Sibling Comm/Interact</i>	Defined by an adolescent’s reference to a talk or discussion with a sibling.
<i>Sibling Relationship</i>	Defined by an adolescent’s reference to an aspect of relationship quality, including trust, confidence, and having good rapport.
<i>Sibling Influence</i>	Defined by an adolescent’s reference to an action taken or behavior engaged in as a result of an interaction with a sibling.
<i>Siblings</i>	All quotations related to siblings
<i>SibRivalry</i>	Indication of/Reference to rivalry between siblings
<i>Sis2Bro</i>	Female adolescent referring to brother
<i>Sis2FemaleCousin</i>	Female adolescent referring to female cousin
<i>Sis2MaleCousin</i>	Female adolescent referring to male cousin
<i>Sis2Sib</i>	Female adolescent referring to sibling (not specified)
<i>Sis2Sis</i>	Female adolescent referring to sister
<i>Sister'sPlace/Home</i>	Reference to visiting or being at sister’s place/home as it relates to a health, romantic or sexual experience
<i>SisterofFriend</i>	Reference to sister of adolescent’s friend as it relates to a health, romantic or sexual experience
<i>Sisters</i>	All quotations related to sisters
<i>Somewhat Not Relevant</i>	Quotations deemed somewhat not relevant, even though they included words of interest
<i>StepFamily</i>	Reference to members of step family

Appendix A (continued) – In-depth interview dissertation study codebook

<i>Code</i>	<i>Description</i>
<i>Streetchild</i>	Reference to adolescent currently being a street child, as well as its meaning and/or consequences
<i>SymptomsHIV/AIDS</i>	Reference to and knowledge of HIV/AIDS-related symptoms, as it relates to describing direct or general experience with HIV/AIDS
<i>TeenPreg</i>	Reference to adolescent being currently pregnant
<i>Transition 2 Adulthood Thru Sib Experience/Behavior</i>	Indication of adolescent using and learning from their siblings' experience and/or behavior
<i>Trust</i>	Reference to adolescent trusting a source of information about HIV/AIDS, pregnancy, or trusting a someone specific
<i>Twins</i>	Reference to being a twin or having twins in the family
<i>UPubTalk</i>	Reference to adolescent having talked to someone or having initiated a conversation with someone about puberty-related matters
<i>UTalkHIV</i>	Reference to adolescent having talked to someone or having initiated a conversation with someone about HIV/AIDS-related matters
<i>UTalkPregPrev</i>	Reference to adolescent having talked to someone or having initiated a conversation with someone about pregnancy-related matters
<i>ViewPremPreg</i>	Reference to adolescent's view of premarital pregnancy
<i>VIQ</i>	'Very Important Quotes': quotes that capture the essence of the code or themes being discussed

Appendix B – List of sources of information discussed by adolescents, 2004 In-depth interviews (Ghana)

Value	Source
0	'No one'
1	'Parents (Father and Mother)'
2	'Father'
3	'Mother'
4	'Uncle and Aunt'
5	'Uncle'
6	'Aunt'
7	'Brothers and Sisters/Siblings'
8	'Brother'
9	'Sister'
10	'Other Relative(s)'
11	'Other Adult(s)/Elders'
12	'Peer group (in-school)'
13	'Peer group (out-of-school)'
14	'Peer group NGO'
15	'NGO/Counselors (PPAG, AIC, FIDA, etc.)'
16	'Teacher(s)/InSchool'
17	'Health care workers'
18	'Doctors'
19	'Nurses'
20	'Friends or Peers'
21	'Religious Leader(s)'
22	'Grandparents'
23	'Grandfather'
24	'Grandmother'
25	'Media (Books, Newspaper, Radio, TV, etc.)'
26	'Sister-in-Law'
27	'Other People/Public/Non-Descript'
28	'Husband'
29	'Boyfriend'
30	'Not Available/Not Discussed'
31	'Self-Medicare'
32	'Herbalist/Traditional Medicine'
33	'HIV-positive person'
34	'Everywhere/Common'
35	'Cousin Sister'
36	'Brother-in-Law'
37	'Girlfriend'
38	'Cousin'
39	'Self/Own Decision'
40	'Looks up to Interviewer'

Appendix C – Category / Theme / Sub-theme by sibling dyad, sibling birth order, and adolescent’s socio-demographic characteristics, 2004 In-depth interviews (Ghana)

<u>Category/ Theme/ Sub-theme</u>	<u>Sibling Dyad Type</u>	<u>Sibling Birth Order</u>	<u>Adolescent’s characteristics</u>			
			<i>Gender/ID</i>	<i>Age</i>	<i>Residence/ Location</i>	<i>School Status</i>
Puberty and pubertal changes	BRO2BRO	Older	<i>Male299</i>	16	Urban	Out-of-school
	SIS2BRO	Older	<i>Female234</i>	19	Urban	In-school
	SIS2SIS1	Older	<i>Female233</i>	19	Urban	In-school
	SIS2SIS2	Older	<i>Female235</i>	14	Urban	Out-of-school
	SIS2SIS	Older	<i>Female243</i>	17	Urban	Out-of-school
Initiating talk about puberty	BRO2BRO	Older	<i>Male262*</i>	15	Rural	In-school
	SIS2SIS	Older	<i>Female236</i>	13	Urban	Out-of-school
	SIS2SIS	Older	<i>Female243</i>	17	Urban	Out-of-school
	SIS2SIS1	Older	<i>Female233</i>	19	Urban	In-school
Observing pubertal changes	BRO2BRO	Older	<i>Male283*</i>	18	Urban	In-school
Source of HIV/AIDS information	SIS2SIS1	Older	<i>Female233</i>	19	Urban	In-school
Preferred source of HIV/AIDS information	BRO2BRO	Older	<i>Male280</i>	16	Urban	In-school
	SIS2BRO + SIS	Older	<i>Female210</i>	18	Rural	In-school
	SIS2SIS	Older	<i>Female223</i>	14	Urban	Out-of-school
	SIS2SIS	Older	<i>Female240</i>	15	Urban	Out-of-school
	SIS2SIS	Older	<i>Female245</i>	18	Urban	Out-of-school
	SIS2SIS1	Older	<i>Female241</i>	17	Urban	Out-of-school

Appendix C (continued) – Category / Theme / Sub-theme by sibling dyad, sibling birth order, and adolescent’s socio-demographic characteristics, 2004 In-depth interviews (Ghana)

<u>Category/ Theme/ Sub-theme</u>	<u>Sibling Dyad Type</u>	<u>Sibling Birth Order</u>	<u>Adolescent’s characteristics</u>			
			<i>Gender/ID</i>	<i>Age</i>	<i>Residence/ Location</i>	<i>School Status</i>
Trusted source of HIV/AIDS information	SIS2SIS	Older	<i>Female240</i>	15	Urban	Out-of-school
	SIS2SIS	Older	<i>Female241</i>	17	Urban	Out-of-school
Know person with HIV	SIS2SIS2	Older	<i>Female256</i>	16	Urban	Out-of-school
Knowledge of romantic/sexual relationship	BRO2BRO	Older	<i>Male264</i>	17	Rural	In-school
	BRO2BRO	Older	Male295*	14	Urban	Out-of-school
	SIS2BRO	Younger	<i>Female232</i>	18	Urban	In-school
	SIS2SIS	Older	<i>Female232</i>	18	Urban	In-school
	SIS2BRO	NS	Female246	18	Urban	Out-of-school
	SIS2SIS	Older	Female255	15	Urban	Out-of-school
	SIS2SIB	NS	Female239	15	Urban	Out-of-school
Source of pregnancy prevention information	BRO2BRO	Older	Male269	14	Rural	Out-of-school
	BRO2SIS	NS	Male260*	14	Rural	In-school
	BRO2SIS	Older	<i>Male303</i>	18	Urban	Out-of-school
	SIS2SIS	Older	<i>Female238</i>	14	Urban	Out-of-school

Appendix C (continued) – Category / Theme / Sub-theme by sibling dyad, sibling birth order, and adolescent’s socio-demographic characteristics, 2004 In-depth interviews (Ghana)

<u>Category/ Theme/ Sub-theme</u>	<u>Sibling Dyad Type</u>	<u>Sibling Birth Order</u>	<u>Adolescent’s characteristics</u>			
			<i>Gender/ID</i>	<i>Age</i>	<i>Residence/ Location</i>	<i>School Status</i>
Preferred source of pregnancy prevention	SIS2BRO+SIS	Older	<i>Female206</i>	16	Rural	In-school
	BRO2SIS	Older	Male302	17	Urban	Out-of-school
	BRO2SIS	Older	<i>Male303</i>	18	Urban	Out-of-school
	SIS2SIS	Older	Female215	15	Rural	Out-of-school
	SIS2SIS1	Older	<i>Female238</i>	14	Urban	Out-of-school
	SIS2SIS	Older	<i>Female241</i>	17	Urban	Out-of-school
Trusted source of pregnancy prevention information	SIS2BRO+SIS	Older	<i>Female206</i>	16	Rural	In-school
Pregnancy talk among siblings	SIS2SIB	NS	<i>Female244</i>	18	Urban	Out-of-school
Overheard pregnancy Prevention Conversation	SIS2SIS	Older	<i>Female235</i>	14	Urban	Out-of-school
Shared pregnancy prevention information with sisters	BRO2SIS	NS	<i>Male260</i>	14	Rural	In-school

Appendix C (continued) – Category / Theme / Sub-theme by sibling dyad, sibling birth order, and adolescent’s socio-demographic characteristics, 2004 In-depth interviews (Ghana)

<u>Category/ Theme/ Sub-theme</u>	<u>Sibling Dyad Type</u>	<u>Sibling Birth Order</u>	<u>Adolescent’s characteristics</u>			
			<i>Gender/ID</i>	<i>Age</i>	<i>Residence/ Location</i>	<i>School Status</i>
Hypothetical health issue	BRO2BRO	Older	<i>Male288</i>	13	Urban	Out-of- school
	SIS2SIS	Older	<i>Female238</i>	14	Urban	Out-of- school
	SIS2SIS1	Older	Female228	14	Urban	In- school
(Reproductive) health issue	BRO2BRO	Older	<i>Male280</i>	16	Urban	In- school
	SIS2SIS	Older	<i>Female236</i>	13	Urban	Out-of- school
	SIS2SIS	Older	<i>Female257</i>	18	Urban	Out-of- school
	SIS2SIS	Older	<i>Female238</i>	14	Urban	Out-of- school
	SIS2SIS	Older	<i>Female241</i>	17	Urban	Out-of- school
	SIS2SIS23	NS	<i>Female256</i>	16	Urban	Out-of- school
Pressure not to have sex	BRO2BRO	Older	<i>Male298</i>	14	Urban	Out-of- school
	BRO2BRO1 or 2	Older	<i>Male286</i>	13	Urban	Out-of- school
	BRO2BRO	Older	<i>Male264</i>	17	Urban	In- school
	SIS2SIS	Older	Female237*	13	Urban	Out-of- school
	SIS2SIS	Older	<i>Female238</i>	14	Urban	Out-of- school
	SIS2SIS1+2	Older	<i>Female233</i>	19	Urban	In- school

Appendix C (continued) – Category / Theme / Sub-theme by sibling dyad, sibling birth order, and adolescent’s socio-demographic characteristics, 2004 In-depth interviews (Ghana)

<u>Category/ Theme/ Sub-theme</u>	<u>Sibling Dyad Type</u>	<u>Sibling Birth Order</u>	<u>Adolescent’s characteristics</u>			
			<i>Gender/ID</i>	<i>Age</i>	<i>Residence/ Location</i>	<i>School Status</i>
Admiration/ Aspiration	BRO2BRO	Older	Male299	16	Urban	Out-of-school
	BRO2BRO1 or 2	Older	Male286	13	Urban	Out-of-school
	SIS2BRO	Older	Female214	14	Rural	Out-of-school
	SIS2BRO	Older	Female229*	15	Urban	In-school
	SIS2SIS	Older	Female213	14	Rural	Out-of-school
	SIS2SIS	Older	Female224*	19	Rural	Out-of-school
	SIS2SIS	Older	Female236	13	Urban	Out-of-school
	SIS2SIS	NS	Female244	18	Urban	Out-of-school
	SIS2SIS	Older	Female247	18	Urban	Out-of-school
	SIS2SIS	Older	Female254	13	Urban	Out-of-school
	SIS2SIS	Older	Female238	14	Urban	Out-of-school
	SIS2SIS	Older	Female241	17	Urban	Out-of-school
	SIS2SIS	Older	Female243	17	Urban	Out-of-school
	SIS2SIS3 or 4	Older	Female256	16	Urban	Out-of-school
Family Context	SIS2SIB	NS	Female257	18	Urban	Out-of-school
Caretaking	SIS2SIS	Younger	Female205	15	Rural	In-school

Appendix C (continued) – Category / Theme / Sub-theme by sibling dyad, sibling birth order, and adolescent’s socio-demographic characteristics, 2004 In-depth interviews (Ghana)

<u>Category/ Theme/ Sub-theme</u>	<u>Sibling Dyad Type</u>	<u>Sibling Birth Order</u>	<u>Adolescent’s characteristics</u>			
			<i>Gender/ID</i>	<i>Age</i>	<i>Residence/ Location</i>	<i>School Status</i>
Recommend initiation rites	BRO2SIB	Younger	Male274	18	Rural	Out-of-school
	SIS2SIS	Younger	<i>Female232</i>	18	Urban	In-school
	SIS2SIS	Younger	<i>Female247</i>	18	Urban	Out-of-school
	SIS2SIB	Younger	<i>Female257</i>	18	Urban	Out-of-school
Sister’s fatal abortion experience	SIS2SIS1	Older	<i>Female256</i>	16	Urban	Out-of-school
Sister’s premarital birth experience	SIS2SIS	Older	<i>Female238</i>	14	Urban	Out-of-school
Cousin’s premarital birth	SIS2SIS	NS	<i>Female249</i>	19	Urban	Out-of-school
Brothers’ role in the family	BRO2BRO1	Older	<i>Male264</i>	17	Rural	In-school
	BRO2BRO	Older	<i>Male298</i>	14	Urban	Out-of-school
	BRO2BRO	Older	<i>Male288</i>	13	Urban	Out-of-school
	BRO2BRO1+2	Older	<i>Male286</i>	13	Urban	Out-of-school
In-Laws’ role in the family	SIS2BRO+SIS2	Older	<i>Female233</i>	19	Urban	In-school
	SIS2SIS2	Older	<i>Female235</i>	14	Urban	Out-of-school

Appendix C (continued) – Category / Theme / Sub-theme by sibling dyad, sibling birth order, and adolescent’s socio-demographic characteristics, 2004 In-depth interviews (Ghana)

<u>Category/ Theme/Sub- theme</u>	<u>Sibling Dyad Type</u>	<u>Sibling Birth Order</u>	<u>Adolescent’s characteristics</u>			
			<i>Gender/ID</i>	<i>Age</i>	<i>Residence/ Location</i>	<i>School Status</i>
Sisters’ role in the family	BRO2SIS	NS	Male282	17	Urban	In- school
	BRO2SIS	NS	Male284*	19	Urban	In- school
	SIS2SIS	Older	<i>Female257</i>	18	Urban	Out-of- school
	SIS2SIS	Older	Female242	17	Urban	Out-of- school
	SIS2SIS	Older	<i>Female238</i>	14	Urban	Out-of- school
	SIS2SIS1	Older	<i>Female233</i>	19	Urban	In- school
	SIS2SIS2	Older	<i>Female243</i>	17	Urban	Out-of- school
	SIS2SIS	Older	<i>Female256</i>	16	Urban	Out-of- school
	SIS2SIB	Self	<i>Female256</i>	16	Urban	Out-of- school
	SIS2SIB	Self/NS	<i>Female257</i>	18	Urban	Out-of- school
Living Arrangement	BRO2BRO	Older	Male295*	14	Urban	Out-of- school
	BRO2BRO	Older	<i>Male303</i>	18	Urban	Out-of- school
	BRO2BRO1	Older	<i>Male286</i>	13	Urban	Out-of- school
	SIS2SIS+BRO	NS	<i>Female240</i>	15	Urban	Out-of- school
	SIS2BRO1	Older	<i>Female210</i>	18	Rural	In- school
	BRO2SIS	NS	Male284*	19	Urban	In- school
	BRO2SIS	NS	Male290	16	Urban	Out-of- school
	SIS2SIS	Older	Female237*	13	Urban	Out-of- school

Appendix C (continued) – Category / Theme / Sub-theme by sibling dyad, sibling birth order, and adolescent’s socio-demographic characteristics, 2004 In-depth interviews (Ghana)

Living Arrangement (continued)	SIS2SIS	Older	Female253	18	Urban	Out-of-school
	SIS2SIS	Older	<i>Female257</i>	18	Urban	Out-of-school
	SIS2SIS	Older	<i>Female235</i>	14	Urban	Out-of-school
	SIS2SIS	Older	<i>Female241</i>	17	Urban	Out-of-school
	SIS2SIS1	Older	<i>Female243</i>	17	Urban	Out-of-school
	BRO2SIB	NS	Male260*	14	Rural	In-school
	BRO2SIB	NS	Male262*	15	Rural	In-school
	BRO2SIB	NS	Male283*	18	Urban	In-school
	BRO2SIB	Younger	Male291	17	Urban	Out-of-school
	SIS2SIB	NS	Female224*	19	Rural	Out-of-school
	SIS2SIB	NS	Female227	13	Urban	In-school
	SIS2SIB	NS	Female230	16	Urban	In-school
	SIS2SIB	NS	<i>Female232</i>	18	Urban	In-school
	SIS2SIB	NS	<i>Female233</i>	19	Urban	In-school
	SIS2SIB	NS	<i>Female247</i>	18	Urban	Out-of-school
	SIS2SIB	NS	Female229*	15	Urban	In-school

‘NS’ denotes unspecified sibling birth order || Bold and italicized alpha-numeric denotes adolescents who reported sibling communication/interaction in more than one context || Asterisk (*) denotes adolescents who reported sibling communication/interaction in only one context besides ‘Living Arrangement’ || ‘BRO2BRO’ denotes male adolescent communication/interaction with male sibling || ‘BRO2SIS’ denotes male adolescent communication/interaction with female sibling || ‘BRO2SIB’ denotes male adolescent communication/interaction with sibling whose gender was not specified || ‘SIS2BRO’ denotes female adolescent communication/interaction with male sibling || ‘SIS2SIS’ denotes female adolescent communication/interaction with female sibling || ‘SIS2SIB’ denotes female adolescent communication/interaction with sibling whose gender was not specified.

Appendix D – Context of adolescent’s communication/interaction with sibling, 2004 In-depth interviews (Ghana)

<u>Adolescent’s characteristics</u>				<u>Sibling gender and birth order</u>	<u>Context of communication or interaction</u>
<i>Gender/ID</i>	<i>Age</i>	<i>Residential Location</i>	<i>School Status</i>		
1.					
Male286	13	Urban	Out-of-school	Older brother1 or 2	<ul style="list-style-type: none"> Strongly encouraged sexual abstinence
				Older brothers1+2	<ul style="list-style-type: none"> Role of brother: adolescent looking for brothers’ support and provision of school fees to continue education
				Older brother1 or 2	<ul style="list-style-type: none"> Aspiration: independent and rich
				Older brother1	<ul style="list-style-type: none"> Lives with brother <i>only</i>
2.					
Male288	13	Urban	Out-of-school	Older brother	<ul style="list-style-type: none"> Intended source of help with hypothetical reproductive health issue, brother will know what to do Role of brother: disciplinarian
3.					
Male295	14	Urban	Out-of-school	Older brother	<ul style="list-style-type: none"> Role of brother: advice to delay sexual initiation until 17; adolescent’s intended sexual debut is 17 because of what brother advised Lives with brother
4.					
Male298	14	Urban	Out-of-school	Older brother	<ul style="list-style-type: none"> Strongly encouraged sexual abstinence Role of brother: advice to avoid ‘bringing pregnancy home’

Appendix D (continued) – Context of adolescent’s communication/interaction with sibling, 2004 In-depth interviews (Ghana)

<u>Adolescent’s characteristics</u>				<u>Sibling gender and birth order</u>	<u>Context of communication or interaction</u>
<i>Gender/ID</i>	<i>Age</i>	<i>Residential Location</i>	<i>School Status</i>		
5.					
Male260	14	Rural	In-school	Not specified/ Self	<ul style="list-style-type: none"> Source of pregnancy prevention information to sisters
				Not specified	<ul style="list-style-type: none"> Lives with siblings
6.					
Male269	14	Rural	Out-of-school	Older brother	<ul style="list-style-type: none"> Source of pregnancy prevention information
7.					
Male262	15	Rural	In-school	Older brother	<ul style="list-style-type: none"> Initiated puberty talk with sibling
				Not specified	<ul style="list-style-type: none"> Lives with siblings
8.					
Male280	16	Urban	In-school	Older brother	<ul style="list-style-type: none"> Preferred source of HIV/AIDS information Sibling provided financial help and treatment at hospital for health issue
9.					
Male299	16	Urban	Out-of-school	Older brother	<ul style="list-style-type: none"> Puberty/pubertal changes Aspiration: doing well living abroad
10.					
Male282	17	Urban	In-school	Not specified	<ul style="list-style-type: none"> Role of sister: household chores

Appendix D (continued) – Context of adolescent’s communication/interaction with sibling, 2004 In-depth interviews (Ghana)

<u>Adolescent’s characteristics</u>				<u>Sibling gender and birth order</u>	<u>Context of communication or interaction</u>
<i>Gender/ID</i>	<i>Age</i>	<i>Residential Location</i>	<i>School Status</i>		
11.					
Male302	17	Urban	Out-of-school	Older sister	<ul style="list-style-type: none"> • Preferred source of pregnancy prevention information
12.					
Male264	17	Rural	In-school	Older brother	<ul style="list-style-type: none"> • Aware of romantic/sexual relationship • Role of brother: supportive of adolescent’s romantic relationship, but strongly encouraged sexual abstinence and focus on school
13.					
Male283	18	Urban	In-school	Older brother	<ul style="list-style-type: none"> • Observed sibling’s pubertal changes
				Not specified	<ul style="list-style-type: none"> • Lives with siblings
14.					
Male303	18	Urban	Out-of-school	Older sister	<ul style="list-style-type: none"> • Source of pregnancy prevention information • Preferred source of pregnancy prevention information
				Older brother	<ul style="list-style-type: none"> • Lives with brother <i>only</i>

Appendix D (continued) – Context of adolescent’s communication/interaction with sibling, 2004 In-depth interviews (Ghana)

<u>Adolescent’s characteristics</u>				<u>Sibling gender and birth order</u>	<u>Context of communication or interaction</u>
<i>Gender/ID</i>	<i>Age</i>	<i>Residential Location</i>	<i>School Status</i>		
15.					
Male274	18	Rural	Out-of-school	Younger siblings/ Not specified	<ul style="list-style-type: none"> Although not initiated, recommends initiation rites to advise against premarital sex and teach ‘good moral behavior’
16.					
Male284	19	Urban	In-school	Not specified	<ul style="list-style-type: none"> Role of sister: household chores
				Not specified	<ul style="list-style-type: none"> Lives with sisters
1.					
Female236	13	Urban	Out-of-school	Older sister	<ul style="list-style-type: none"> Initiated puberty talk with sibling Sibling provided remedy for skin infection Aspiration: sister behaves well
2.					
Female237	13	Urban	Out-of-school	Older sister	<ul style="list-style-type: none"> Strongly encouraged sexual abstinence, to avoid pregnancy Lives with sister <i>only</i>
3.					
Female254	13	Urban	Out-of-school	Older sister	<ul style="list-style-type: none"> Aspiration: sister married man who took her abroad, now rich

Appendix D (continued) – Context of adolescent’s communication/interaction with sibling, 2004 In-depth interviews (Ghana)

<u>Adolescent’s characteristics</u>				<u>Sibling gender and birth order</u>	<u>Context of communication or interaction</u>
<i>Gender/ID</i>	<i>Age</i>	<i>Residential Location</i>	<i>School Status</i>		
4.					
Female228	14	Urban	In-school	Older sister	<ul style="list-style-type: none"> Discussed sister’s remedy for yeast infection when asked about hypothetical health seeking for reproductive issue
5.					
Female235	14	Urban	Out-of-school	Older sister	<ul style="list-style-type: none"> Overheard pregnancy prevention information
				Sister-in-law	<ul style="list-style-type: none"> Puberty/pubertal changes Role of sister: raised alarm about adolescent attempting abortifacient
				Older sister	<ul style="list-style-type: none"> Lives with sister <i>only</i>

Appendix D (continued) – Context of adolescent’s communication/interaction with sibling, 2004 In-depth interviews (Ghana)

<u>Adolescent’s characteristics</u>				<u>Sibling gender and birth order</u>	<u>Context of communication or interaction</u>
<i>Gender/ID</i>	<i>Age</i>	<i>Residential Location</i>	<i>School Status</i>		
6.					
Female238	14	Urban	Out-of-school	Older sister	<ul style="list-style-type: none"> • Pregnancy prevention information • Strongly encouraged sexual abstinence • Preferred source of pregnancy prevention information • Preferred source of HIV/AIDS information • Role of sister: accompanied adolescent to seek treatment at hospital for body aches • Role of sister: sister to tell father of reproductive health issue on adolescent’s behalf (hypothetical situation) • Sister had child out-of-wedlock • Aspiration: hardworking like sister
7.					
Female213	14	Rural	Out-of-school	Older sister	<ul style="list-style-type: none"> • Aspiration: like sister who has successfully avoided engaging in risky behaviors, unlike other girls

Appendix D (continued) – Context of adolescent’s communication/interaction with sibling, 2004 In-depth interviews (Ghana)

<u>Adolescent’s characteristics</u>				<u>Sibling gender and birth order</u>	<u>Context of communication or interaction</u>
<i>Gender/ID</i>	<i>Age</i>	<i>Residential Location</i>	<i>School Status</i>		
8.					
Female214	14	Rural	Out-of-school	Older brother	<ul style="list-style-type: none"> Aspiration: brother’s humble character
9.					
Female229	15	Urban	In-school	Older brother	<ul style="list-style-type: none"> Aspiration: learned hard, leading him to travel abroad
				Not specified	<ul style="list-style-type: none"> Lives with siblings
10.					
Female239	15	Urban	Out-of-school	Not specified	<ul style="list-style-type: none"> Siblings aware and supportive of romantic/sexual relationship
11.					
Female240	15	Urban	Out-of-school	Older sister	<ul style="list-style-type: none"> Preferred source of HIV/AIDS information Trusted source of HIV/AIDS information
12.					
Female255	15	Urban	Out-of-school	Older sister	<ul style="list-style-type: none"> Sister <i>not</i> aware of romantic/sexual relationship, despite meeting boyfriend at market where she works with her sister
13.					
Female205	15	Rural	In-school	Younger sisters	<ul style="list-style-type: none"> Caretaking

Appendix D (continued) – Context of adolescent’s communication/interaction with sibling, 2004 In-depth interviews (Ghana)

<u>Adolescent’s characteristics</u>				<u>Sibling gender and birth order</u>	<u>Context of communication or interaction</u>
<i>Gender/ID</i>	<i>Age</i>	<i>Residential Location</i>	<i>School Status</i>		
14.					
Female215	15	Rural	Out-of-school	Older sister	<ul style="list-style-type: none"> Preferred source of pregnancy prevention information
15.					
Female256	16	Urban	Out-of-school	Self	<ul style="list-style-type: none"> Role of sister: moved to Accra to find work and support father and younger siblings
				Older sister1	<ul style="list-style-type: none"> Sister1 died from having an abortion
				Older sister2	<ul style="list-style-type: none"> Sister2 died of HIV/AIDS
				Older sister3	<ul style="list-style-type: none"> Confided in sister3 about yeast infection
				Older sister3 or 4	<ul style="list-style-type: none"> Role of sister: raising adolescent’s baby
				Older sister3 or 4	<ul style="list-style-type: none"> Aspiration: sister married to a rich man
16.					
Female206	16	Rural	In-school	Older sisters Older brothers	<ul style="list-style-type: none"> Preferred source of pregnancy prevention information Trusted source of pregnancy prevention information

Appendix D (continued) – Context of adolescent’s communication/interaction with sibling, 2004 In-depth interviews (Ghana)

<u>Adolescent’s characteristics</u>				<u>Sibling gender and birth order</u>	<u>Context of communication or interaction</u>
<i>Gender/ID</i>	<i>Age</i>	<i>Residential Location</i>	<i>School Status</i>		
17.					
Female241	17	Urban	Out-of-school	Older sister	<ul style="list-style-type: none"> • Preferred source of HIV/AIDS information • Trusted source of HIV/AIDS information • Preferred source of pregnancy information • Role of sister: boiled herbs to treat her fever • Aspiration: sister leads a good life • Lives with sister <i>only</i>
18.					
Female242	17	Urban	Out-of-school	Older sister	<ul style="list-style-type: none"> • Role of sister: confided in sister about pregnancy; sought sister’s help in informing her boyfriend (which sister did)
19.					
Female243	17	Urban	Out-of-school	Older sister	<ul style="list-style-type: none"> • Initiated puberty talk with sibling • Puberty/pubertal changes • Aspiration: peaceful marriage • Role of sister: pregnancy prevention advice during puberty talk • Lives with sibling(s)

Appendix D (continued) – Context of adolescent’s communication/interaction with sibling, 2004 In-depth interviews (Ghana)

<u>Adolescent’s characteristics</u>				<u>Sibling gender and birth order</u>	<u>Context of communication or interaction</u>
<i>Gender/ID</i>	<i>Age</i>	<i>Residential Location</i>	<i>School Status</i>		
20.					
Female232	18	Urban	In-school	Younger brother	<ul style="list-style-type: none"> Aware of romantic/sexual relationship
				Older sister	<ul style="list-style-type: none"> Aware of romantic/sexual relationship
				Younger sister	<ul style="list-style-type: none"> Herself initiated, recommends initiation rites to avoid ridicule or embarrassment
				Not specified	<ul style="list-style-type: none"> Lives with siblings
21.					
Female244	18	Urban	Out-of-school	Sisters/ Not specified	<ul style="list-style-type: none"> Mother and relatives communicated about pregnancy prevention with female siblings
				Sister/ Not specified	<ul style="list-style-type: none"> Aspiration: to be very educated and ‘go far’ like her sister
22.					
Female245	18	Urban	Out-of-school	Older sister	<ul style="list-style-type: none"> Preferred source of HIV/AIDS information
23.					
Female246	18	Urban	Out-of-school	Brother/ not specified	<ul style="list-style-type: none"> Aware of romantic/sexual relationship

Appendix D (continued) – Context of adolescent’s communication/interaction with sibling, 2004 In-depth interviews (Ghana)

<u>Adolescent’s characteristics</u>				<u>Sibling gender and birth order</u>	<u>Context of communication or interaction</u>
<i>Gender/ID</i>	<i>Age</i>	<i>Residential Location</i>	<i>School Status</i>		
24.					
Female247	18	Urban	Out-of-school	Older sister	<ul style="list-style-type: none"> Aspiration: sister’s lifestyle and humble character
				Younger sister	<ul style="list-style-type: none"> Herself initiated, recommends initiation rites because it is tradition
				Not specified	<ul style="list-style-type: none"> Does <i>not</i> live with siblings
25.					
Female257	18	Urban	Out-of-school	Older sister	<ul style="list-style-type: none"> Informed sister about yeast infection, Role of sister: took adolescent to hospital to seek treatment Lives with sister <i>only</i>
				Self/ Not specified	<ul style="list-style-type: none"> Role of sister: finding work to obtain decent accommodation for adolescent’s sibling and baby; looking to learn a trade and settle so she can help her siblings Herself initiated, recommends initiation rites because it is culture
26.					
Female210	18	Rural	In-school	Older Sisters + Brothers	<ul style="list-style-type: none"> Preferred source of HIV/AIDS information
				Older brother1	<ul style="list-style-type: none"> Lives with brother <i>only</i>

Appendix D (continued) – Context of adolescent’s communication/interaction with sibling, 2004 In-depth interviews (Ghana)

<u>Adolescent’s characteristics</u>				<u>Sibling gender and birth order</u>	<u>Context of communication or interaction</u>
<i>Gender/ID</i>	<i>Age</i>	<i>Residential Location</i>	<i>School Status</i>		
27.					
Female233	19	Urban	In-school	Older sisters	<ul style="list-style-type: none"> • Puberty/pubertal changes • Initiated puberty talk with sibling • HIV/AIDS information • Role of sister: incentive to remain sexually abstinent; family relations advice
				Older sisters + Sister-in-law	<ul style="list-style-type: none"> • Strongly encouraged sexual abstinence
				Brother in-law	<ul style="list-style-type: none"> • Role of brother: protection from unwanted male advances
				Step-brother	<ul style="list-style-type: none"> • Lives with sibling
28.					
Female249	19	Urban	Out-of-school	Not specified	<ul style="list-style-type: none"> • Mother used cousin’s pregnancy as example when discussing pregnancy prevention with adolescent
29.					
Female234	19	Urban	In-school	Older brothers	<ul style="list-style-type: none"> • Puberty/Pubertal changes
30.					
Female224	19	Rural	Out-of-school	Older sister	<ul style="list-style-type: none"> • Aspiration: sister who has a trade that allows her to take care of husband and children
				Not specified	<ul style="list-style-type: none"> • Lives with siblings

Appendix E – Percentage of adolescents who reported at least one sibling as a used and/or preferred source of sexual and reproductive health information from 2004 National Survey of Adolescents (Burkina Faso, Ghana, Malawi, and Uganda)

Country	Burkina Faso	Ghana	Malawi	Uganda
<i>Topic: Discussed sex-related matters</i>				
Brother	4.7 (N=5947)	5.1 (N=4420)	7.4 (N=4026)	6.2 (N=5103)
Sister	3.5 (N=5947)	7.4 (N=4420)	7.0 (N=4026)	7.7 (N=5103)
Any sibling	7.4 (N=5955)	11.1 (N=4430)	12.3 (N=4031)	12.7 (N=5112)
<i>Topic: Source of contraceptive information</i>				
Brother	4.8 (N=4843)	2.7 (N=3998)	1.7 (N=3466)	4.1 (N=4792)
Sister	2.0 (N=4843)	2.5 (N=3998)	1.6 (N=3466)	4.8 (N=4792)
Any sibling	5.1 (N=5955)	4.1 (N=4430)	2.7 (N=4031)	7.7 (N=5112)
<i>Topic: Preferred source of contraceptive information</i>				
Brother	4.1 (N=4845)	0.6 (N=3855)	0.4 (N=3425)	1.2 (N=4771)
Sister	2.5 (N=4845)	1.4 (N=3855)	0.4 (N=3425)	2.3 (N=4771)
Any sibling	4.7 (N=5955)	1.6 (N=4430)	0.7 (N=4031)	3.2 (N=5112)
<i>Topic: Source of STI or HIV/AIDS information</i>				
Brother	5.7 (N=5955)	3.4 (N=4430)	2.3 (N=4031)	7.6 (N=5112)
Sister	2.9 (N=5955)	2.8 (N=4430)	2.1 (N=4031)	7.8 (N=5112)
Any sibling	7.1 (N=5955)	5.1 (N=4430)	4.0 (N=4031)	12.6 (N=5112)
<i>Topic: Preferred source of STI or HIV/AIDS information</i>				
Brother	3.3 (N=5955)	0.7 (N=4430)	0.6 (N=4031)	2.1 (N=5112)
Sister	2.4 (N=5955)	1.0 (N=4430)	0.6 (N=4031)	2.7 (N=5112)
Any sibling	4.7 (N=5955)	1.4 (N=4430)	1.1 (N=4031)	4.4 (N=5112)
<i>Topic: Encouragement to abstain from sex</i>				
Brother	12.3 (N=1506)	10.7 (N=1707)	13.7 (N=873)	9.8 (N=2073)
Sister	8.1 (N=1506)	12.5 (N=1707)	12.1 (N=873)	9.9 (N=2073)
Any sibling	18.0 (N=1514)	18.3 (N=1714)	21.9 (N=880)	17.1 (N=2078)

REFERENCES

- Abdellah, F.G. and E. Levine. 1994. *Preparing nursing research for the 21st century: Evolution, Methodologies, Challenges*. New York: Springer Publishing Co.
- Abramovitch, R., C. Corter, D.J. Pepler, and L. Stanhope. 1986. "Sibling and peer interaction: A final follow-up and a comparison." *Child Development* 57:217-229.
- Abramovitch, R., D. Pepler, and C. Corter. 1982. "Patterns of sibling interaction among preschool-age children." Pp. 61-86 in *Sibling relationships: Their nature and significance across the lifespan.*, edited by M.E. Lamb and B. Sutton-Smith. Hillsdale, NJ: Lawrence Erlbaum.
- Adomako-Ampofo, A. 2001. "'When men speak women listen': gender socialization and young adolescents' attitudes to sexual and reproductive issues." *African Journal of Reproductive Health* 5(3):196-212.
- Afful-Wellington, E. 2003. "Self-medication in rural communities in the Mfantseman District." Dissertation. Department of Geography and Tourism, University of Cape Coast.
- Ahiadeke, C. 2001. "Incidence of induced abortion in southern Ghana." *International Family Planning Perspectives* 27(2):96-101, 108.
- Ainsworth, M., K. Beegle, and A. Nyamete. 1996. "The Impact on Women's Schooling on Fertility and Contraceptive Use: A Study of Fourteen Sub-Saharan African Countries." *World Bank Economic Review* 10(1):85-122.
- Akers, R.L. 1998. *Social learning and social structure: A general theory of crime and deviance*. Boston, MA: Northeastern University Press.
- Amato, P.R. and F. Fowler. 2002. "Parenting practices, child adjustment, and family diversity." *Journal of Marriage and Family* 64(3):703-716.
- Anarfi, J.K. 1995. "The condition and care of AIDS victims in Ghana: AIDS sufferers and their relations." Pp. 253-263 in *The Third World AIDS Epidemic*, edited by I.O. Orubuloye, J.C. Caldwell, P. Pat Caldwell, and S. Shail Jain. Canberra: Australian National University.
- Anarfi, J.K. 1997. "Vulnerability to sexually transmitted disease: street children in Accra." *Health Transition Review* 7(Suppl.):281-306.

- Anarfi, J.K. and P. Antwi. 1995. "Street youth in Accra city: sexual networking in a high-risk environment and its implications for the spread of HIV/AIDS." *Health Transition Review* 5(Suppl.):131-152.
- Anderson, E. 1989. "Sex codes and family life among poor inner-city youths." *Annals of the American Academy of Political and Social Science* 501:59-78.
- Ankrah, M.E. 1993. "The impact of HIV/AIDS on the family and other significant relationships: the African clan revisited. ." *AIDS Care* 5(1):5-22.
- Ansbacher, H.L. and R.R. Ansbacher. 1956. *The individual psychology of Alfred Adler*. New York: Basic Books.
- Ardelt, M. and L. Day. 2002. "Parents, Siblings, and Peers: Close Social Relationships and Adolescent Deviance." *Journal of Early Adolescence* 22(3):310-349.
- Argys, L.M., D.I. Rees, S.L. Averett, and B. Witoonchart. 2006. "Birth Order and Risky Adolescent Behavior." *Economic Inquiry* 44(2):215-233.
- Ary, D.V., E. Tildesley, H. Hops, and J. Andrews. 1993. "The influence of parents, sibling, and peer modeling and attitudes on adolescent use of alcohol." *The International Journal of the Addictions* 28:853-880.
- Asbury, J. 1995. "Overview of focus group research." *Qualitative Health Research* 5:414-420.
- Atchley, R.C. 1977. *The social forces in later life*. Belmont, CA.: Wadsworth.
- Averett, S., L.M. Argys, and D.I. Rees. 2010. "Older siblings and adolescent risky behavior: does parenting play a role?" *Journal of Population Economics* 24(3):957-978.
- Avtgis, T.A., M.M. Martin, and K.A. Rocca. 2000. "Social support and perceived understanding in the brother relationship." *Communication Research Reports* 17(4):407-414.
- Awusabo-Asare, K. 1995. "HIV/AIDS education and counselling: experiences from Ghana." *Health Transition Review* 5 (Suppl):229-236.
- Awusabo-Asare, K., A. Bankole, and A. Kumi-Kyereme. 2008. "Views of Adults on Adolescent Sexual and Reproductive Health: Qualitative Evidence from Ghana." Pp. 5-47: Guttmacher Institute.

- Awusabo-Asare, K., A.E. Biddlecom, A. Kumi-Kyereme, and K. Patterson. 2006. "Adolescent Sexual and Reproductive Health in Ghana: Results from the 2004 National Survey of Adolescents." New York: Guttmacher Institute.
- Azmitia, M. and J. Hesser. 1993. "Why Siblings Are Important Agents of Cognitive Development: A Comparison of Siblings and Peers." *Child Development* 64:430-444.
- Bandura, A. 1969. *Principles of behavior modification*. New York: Holt, Rinehart, & Winston.
- Bandura, A. 1977. *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bank, S.P. and M.D. Kahn. 1997. *The sibling bond*. New York: Basic Books.
- Bankole, A., F.H. Ahmed, S. Neema, C. Ouedraogo, and S. Konyani. 2007. "Knowledge of correct condom use and consistency of use among adolescents in four countries in Sub-Saharan Africa." *African Journal of Reproductive Health* 11(3):197-220.
- Bard, D. and J.L. Rodgers. 2003. "Sibling Influence on Smoking Behavior: A Within-Family Look at Explanations for a Birth-Order Effect." *Journal of Applied Social Psychology* 33(9):1773-1795.
- Barnard, M. 2005. *Drugs in the Family: The Impact on Parents and Siblings*. York: Joseph Rowntree Foundation.
- Barnes, G.M. 1990. "Impact of family on adolescent drinking patterns." Pp. 523-527 in *Alcohol and the Family: Research and Clinical Perspectives.*, edited by R.L. Collins, K.E. Leonard, and J.S. Searles: New York.
- Barton, A. and P.F. Lazarsfeld. 1955. "Some functions of qualitative data analysis in sociological research." *Sociologica* 1:321-361.
- Basch, C. 1987. "Focus group interview: an underutilized research technique for improving theory and practice in health education." *Health Education Quarterly* 14:411-448.
- Basit, T. 2003. "Manual or electronic? The role of coding in qualitative data analysis." *Educational Research* 45(2):143-154.
- Bedford, V.H. 1995. "Sibling relationships in middle and old age." Pp. 201-222 in *Handbook of aging the family.*, edited by R. Blieszner and V.H. Bedford. Westport, CT: Greenwood Press.

- Belsky, J., L. Youngblade, M. Rovine, and B. Volling. 1991. "Patterns of marital change and parent-child interaction." *Journal of Marriage and the Family* 53:487-498.
- Benin, M.H. and D.R. Johnson. 1984. "Sibling similarities in educational attainment: A comparison of like-sex and cross-sex sibling pairs." *Sociology of Education* 57:11-21.
- Berg, B.L. 2009. *Qualitative research methods for the social sciences*. Boston: Allyn & Bacon.
- Biddlecom, A.E., A. Munthali, S. Singh, and V. Wong. 2007. "Adolescents' views of and preferences for sexual and reproductive health services in Burkina Faso, Ghana, Malawi, and Uganda." *African Journal of Reproductive Health* 11(3):99-110.
- Blair-Loy, M. 2003. *Competing devotions: Career and family among women executives*. Cambridge, MA: Harvard University Press.
- Bledsoe, C. and B. Cohen. 1993. *Social Dynamics of Adolescent Fertility in Sub-Saharan Africa*. Washington, D.C.: National Academy Press.
- Bleek, W. 1981. "Avoiding shame: the ethical dimension of abortion in Ghana." *Anthropological Quarterly* 54(4):203-209.
- Blum, R. and K. Nelson-Mmari. 2004. "The Health of Young People in a Global Context." *Journal of Adolescent Health* 35:402-418.
- Bogardus, E. 1926. "The group interview." *Applied Sociology* 10:372-382.
- Bongaarts, J. and R.G. Potter. 1983. *Fertility, Biology and Behavior: An Analysis of the Proximate Determinants*. New York: Academic Press.
- Borgerhoff Mulder, M. 1998. "Brothers and sisters: How sibling interactions affect optimal parental allocations." *Human Nature* 9(2):119-161.
- Bornat, J. 2005. "Recycling the Evidence: Different Approaches to the Reanalysis of Gerontological Data." *Forum: Qualitative Social Research* 6(1):Art. 42.
- Bowen, M. 1978. *Family Therapy in Clinical Practice*. New York and London: Jason Aronson.
- Bowerman, C.E. and R. Dobash. 1974. "Structural Variations In Intersibling Affect." *Journal of Marriage and the Family* 36:48-54.
- Boyle, J.S. 1994. "Styles of ethnography." Pp. 159-185 in *Critical issues in qualitative research methods*, edited by J.M. Morse. Thousand Oaks, CA: Sage.

- Boyle, M.H., M. Sanford, P. Szatman, K. Merikangas, and D.R. Offord. 2001. "Familial influences of substance use by adolescents and young adults." *Canadian Journal of Public Health* 92:206-209.
- Branje, S.J., C.F. van Lieshout, M.A. van Aken, and G.J. Haselager. 2004. "Perceived support in sibling relationships and adolescent adjustment." *Journal of Child Psychology and Psychiatry* 45(8):1385-1396.
- Breen, R.L. 2006. "A practical guide to focus group research." *Journal of Geography in Higher Education* 30(3):463-475.
- Brody, G.H. 1998. "Sibling relationship quality: Its causes and consequences." *Annual Review of Psychology* 49:1-24.
- Brody, G.H., W.G. Graziano, and L.M. Musser. 1983. "Familiarity and children's behavior in same-age and mixed age peer group." *Developmental Psychology* 19:568-576.
- Brody, G.H. and V.M. Murry. 2001. "Sibling Socialization of Competence in Rural, Single-Parent African American Families." *Journal of Marriage and Family* 63:996-1008.
- Brody, G.H., Z. Stoneman, and J.K. McCoy. 1992. "Associations of maternal and paternal direct and differential behavior with sibling relationships: Contemporaneous and longitudinal analyses." *Child Development* 63:82-92.
- Brody, G.H., Z. Stoneman, and J.K. McCoy. 1994. "Contributions of family relationships and child temperament to longitudinal variations in sibling relationship quality and sibling relationship styles." *Journal of Family Psychology* 8:274-286.
- Bronfenbrenner, U. 1977. "Toward an experimental ecology of human development." *American Psychologist* 32:513-531.
- Bronfenbrenner, U. 1979. *The ecology of human development*. Cambridge, MA: Harvard University Press.
- Bronfenbrenner, U. 1989. "Ecological systems theory." *Annals of Child Development* 6:185-246.
- Brook, J.S., M. Whiteman, D.W. Brook, and A.S. Gordon. 1991. "Sibling influences on adolescent drug use: older brothers on younger brothers." *Journal of the American Academy of Child & Adolescent Psychiatry* 30(6):958-966.

Brook, J.S., M. Whiteman, A.S. Gordon, and D.W. Brook. 1990. "The role of older brothers in younger brothers' drug use viewed in the context of parent and peer influences." *Journal of Genetic Psychology* 151:59-75.

Browning, C.R., T. Leventhal, and J. Brooks-Gunn. 2005. "Sexual initiation in early adolescence: the nexus of parental and community control." *American Sociological Review* 70(5):758-778.

Bryant, B. 1992. "Sibling caretaking: Providing emotional support during middle childhood." in *Children's sibling relationships: Developmental and clinical issues*, edited by F.D. Boer, J. Hillsdale, NJ: Erlbaum.

Bryman, A. 2001. *Social Research Methods*. Oxford: Oxford University Press.

Buhrmester, D. 1992. "The developmental courses of sibling and peer relationships." Pp. 19-40 in *Children's sibling relationships: Developmental and clinical issues*, edited by F. Boer and J. Dunn. Hillsdale, NJ: Erlbaum.

Buhrmester, D. and W. Furman. 1990. "Perceptions of Sibling Relationships during Middle Childhood and Adolescence." *Child Development* 61(5):1387-1398.

Bullock, B.M. and T.J. Dishion. 2002. "Sibling collusion and problem behavior in early adolescence: Toward a process model for family mutuality." *Journal of Abnormal Child Psychology* 30(2):143-153.

Bumpass, L. and S. McLanahan. 1988. "Intergenerational Consequences of Family Disruption." *American Journal of Sociology* 94:130-152.

Burrows, D. and S. Kendall. 1997. "Focus groups: What are they and how can they be used in nursing and health care research?" *Social Sciences in Health* 3:244-253.

Carey, G. 1986. "Sibling imitation and contrast effects." *Behaviors Genetics* 16 (3)319-341.

Carey, M. and M. Smith. 1994. "Capturing the group effect in focus groups: A special concern in analysis." *Qualitative Health Research* 4(1):123-127.

Catterall, M. and P. Maclaran. 1997. "Focus group data and qualitative analysis programs: Coding the moving picture as well as the snapshots." *Sociological Research Online* 2(1):U53-U61.

Cicirelli, V.G. 1991. "Sibling relationships in adulthood." *Marriage & Family Review* 16(3-4):291-310.

- Cicirelli, V.G. 1994. "Sibling Relationships in Cross-Cultural Perspective." *Journal of Marriage and Family* 56(1):7-20.
- Cicirelli, V.G. 1995. *Sibling Relationships Across The Life Span*. New York: Plenum Press.
- Cicirelli, V.G. and J.F. Nussbaum. 1989. "Relationships with siblings in later life." Pp. 283-299 in *Life-span communication: Normative processes.*, edited by J.F. Nussbaum. Hillsdale, NJ: Erlbaum.
- Coffey, A. and P. Atkinson. 1996. *Making Sense of Qualitative Data*. London: Sage.
- Cole, A.K. and K.A. Kerns. 2001. "Perceptions of sibling qualities and activities of early adolescents." *Journal of Early Adolescence* 21:204-227.
- Conger, K.J. and R.D. Conger. 1994. "Differential parenting and change in sibling differences in delinquency." *Journal of Family Psychology* 8:287-302.
- Conger, K.J. and W.M. Little. 2010. "Sibling Relationships during the Transition to Adulthood." *Child Development Perspectives* 4(2):87-94.
- Conger, R.D. and M.A. Reuter. 1996. "Siblings, parents, and peers: a longitudinal study of social influences in adolescent risk for alcohol use and abuse." Pp. 1-30 in *Sibling Relationships: Their Causes and Consequences. Advances in Applied Developmental Psychology.*, edited by G.H. Brody. Norwood, NJ: Ablex Publishing.
- Connidis, I.A. 1992. "Life transitions and the adult sibling tie: a qualitative study." *Journal of Marriage & the Family* 54:972-982.
- Connidis, I.A. 2007. "Negotiating Inequality Among Adult Siblings: Two Case Studies." *Journal of Marriage and the Family* 69(2):482-499.
- Connidis, I.A. and L.D. Campbell. 1995. "Closeness, confiding, and contact among siblings in middle and late adulthood." *Journal of Family Issues* 16(6):722-745.
- Cope, M. and S. Elwood. 2009. *Qualitative GIS: Mixed Methods Approaches*. London: Sage.
- Corti, J.K. 2009. "Sibling relationships during the young adult years: An analysis of closeness, relational satisfaction, everyday talk, and turning point." Dissertation. University of Denver.
- Corti, L., A. Witzel, and L. Bishop. 2005. "On the Potentials and Problems of Secondary Analysis. An Introduction to the FQS Special Issue on Secondary Analysis of Qualitative Data." *Forum: Qualitative Social Research* 6(1):Art. 49.

- Cox, J., S.J. Emans, and W. Bithoney. 1993. "Sisters of teen mothers: increased risk for adolescent parenthood." *Adolescent and Pediatric Gynecology* 6:138-142.
- Creswell, J.W. 1994. *Research design: qualitative and quantitative approaches*. Thousand Oaks, CA: Sage.
- Creswell, J.W. 1998. *Qualitative Inquiry and Research Design: Choosing Among Five Traditions*. Thousand Oaks, CA: Sage.
- Creswell, J.W. and V.L. Plano Clark. 2007. *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage.
- Crosnoe, R. and G.H. Elder, Jr. 2004. "Family dynamics, supportive relationships, and educational resilience during adolescence." *Journal of Family Issues* 25(5):571-602.
- D'Amico, E. and K. Fromme. 1997. "Health risk behaviors of adolescent and young adult siblings." *Health Psychology* 16(5):426-432.
- de Leeuw, R.N.H., H.M. Snoek, J.F.J. van Leeuwe, T. van Strien, and R.C.M.E. Engels. 2007. "Similarities and reciprocal influences in eating behavior within sibling pairs: A longitudinal study." *Eating Behaviors* 8:464-473.
- Denzin, N.K. 1989. *The Research Act: A Theoretical Introduction to Sociological Methods*. Englewood Cliffs, NJ: Prentice Hall.
- Denzin, N.K. and Y.S. Lincoln. 2000. *Handbook of qualitative research*. Thousand Oaks, CA: Sage.
- Diop-Sidibe, N. 2005. "Siblings' Premarital Childbearing and the Timing of First Sex in Three Major Cities of Cote d'Ivoire." *International Family Planning Perspectives* 31(2):54-62.
- Donovan, J.E. and R. Jessor. 1985. "Structure of Problem Behaviors in Adolescence and Young Adulthood." *Journal of Consulting Clinical Psychology* 43:890-904.
- Duncan, G.J., J. Boisjoly, and K.M. Harris. 2001. "Sibling, Peer, Neighbor, and Schoolmate Correlations as Indicators of the Importance of Context for Adolescent Development." *Demography* 38(3):437-447.
- Duncan, S.C., T.E. Duncan, and A. Alpert. 1998. "Alcohol Use Among African American and White Siblings: A Multilevel Latent Growth Modeling Approach." *Journal of Gender, Culture, and Health* 3(4).

- Duncan, T.E., S.C. Duncan, and H. Hops. 1996. "The role of parents and older siblings in predicting adolescent substance use: modeling development via structural equation latent growth methodology." *Journal of Family Psychology* 10:158-172.
- Dunn, J. 1983. "Sibling relationship in early childhood." *Child Development* 54:787-811.
- Dunn, J. 1985. *Sisters and brothers*. Cambridge: Harvard University Press.
- Dunn, J. 1996a. "Brothers and sisters in middle childhood and early adolescence: Continuity and change in individual differences." Pp. 31-46 in *Advances in Applied Developmental Psychology*, edited by G.H. Brody. Norwood, NJ: Ablex.
- Dunn, J. 1996b. "Sibling relationships and perceived self-competence: Patterns of stability between childhood and early adolescence " Pp. 253-270 in *Reason and responsibility: The passage through childhood*, edited by A. Sameroff and M. Haith. Chicago: University of Chicago Press.
- Dunn, J. 1996c. "Siblings: The first society." Pp. 105-124 in *A lifetime of relationships* edited by N. Vanzetti and S. Duck. Pacific Grove, CA: Brooks Cole.
- Dunn, J. 2002. "Sibling Relationships." Pp. 223-237 in *Blackwell Handbook of Childhood Social Development.*, edited by P.K. Smith and C.H. Hart. Oxford, UK: Blackwell Publishing.
- Dunn, J. and C. Kendrick. 1981. "Social Behavior of Young Siblings in the Family Context: Differences between Same-sex and Different-sex Dyads." *Child Development* 52:1265-1273.
- Dunn, J. and C. Kendrick. 1982. *Siblings: Love, envy, and understanding*. Cambridge, MA: Harvard University Press.
- Dunn, J. and R. Plomin. 1990. *Separate lives: Why siblings are so different*. New York: Basic.
- Dunn, J. and R. Plomin. 1991. "Why Are Siblings So Different? The Significance of Differences in Sibling Experiences Within the Family." *Fam Proc* 30:271-283.
- Dunn, J., C. Slomkowski, and L. Beardsall. 1994. "Sibling Relationships from the Preschool Period through Middle Childhood and Early Adolescence." *Developmental Psychology* 30:315-324.
- East, P.L. 1996. "Do adolescent pregnancy and childbearing affect younger siblings?" *Family Planning Perspectives* 28(4):148-153.

- East, P.L. 1998a. "Breaking the cycle of teenage pregnancy: prevention opportunities focusing on the younger sisters of teen mothers." *Education and Urban Society* 30(2):157-171.
- East, P.L. 1998b. "Impact of Adolescent Childbearing on Families and Younger Siblings: Effects That Increase Younger Siblings' Risk for Early Pregnancy." *Applied Developmental Science* 2(2):62-74.
- East, P.L. 1999. "The first teenage pregnancy in the family: does it affect mother's parenting, attitudes, or mother-adolescent communication?" *Journal of Marriage and the Family* 61(2):309-319.
- East, P.L., M.E. Felice, and M.C. Morgan. 1993. "Sisters' and girlfriends' sexual childbearing behavior: Effects on early adolescent girls' sexual outcomes." *Journal of Marriage and the Family* 55:953-963.
- East, P.L. and L.J. Jacobson. 2000. "Adolescent Childbearing, Poverty, and Siblings: Taking New Direction From the New Literature." *Family Relations* 49(3):287-292.
- East, P.L. and L.J. Jacobson. 2001a. "The Younger Siblings of Teenage Mothers: A Follow-Up of Their Pregnancy Risk." *Developmental Psychology* 37(2):245-264.
- East, P.L. and L.J. Jacobson. 2003a. "Mothers' differential treatment of their adolescent childbearing and nonchildbearing children: contrasts between and within families." *Journal of Family Psychology* 17(3):384-396.
- East, P.L. and S.T. Khoo. 2005. "Longitudinal Pathways Linking Family Factors and Sibling Relationship Qualities to Adolescent Substance Use and Sexual Risk Behaviors." *Journal of Family Psychology* 19(4):571-580-571-580.
- East, P.L., E. Kiernan, and G. Chávez. 2003b. "An Evaluation of California's Adolescent Sibling Pregnancy Prevention Program." *Perspectives on Sexual and Reproductive Health* 35(2):62-70.
- East, P.L. and E.A. Kiernan. 2001b. "Risk Among Youths Who Have Multiple Sisters Who Were Adolescent Parents." *Family Planning Perspectives* 33(2):75-80.
- East, P.L., B.T. Reyes, and E.J. Horn. 2007. "Association Between Adolescent Pregnancy and a Family History of Teenage Births." *Perspectives on Sexual and Reproductive Health* 39(2):108-115.
- East, P.L., A. Slonim, E.J. Horn, C. Trinh, and B.T. Reyes. 2009. "How an Adolescent's Childbearing Affects Siblings' Pregnancy Risk: A Qualitative Study of Mexican American Youths." *Perspectives on Sexual and Reproductive Health* 41(4):210-217.

- Edwards, R., L. Hadfield, H. Lucey, and M. Mauthner. 2006. *Sibling Identity and Relationships: Sisters and Brothers*. London: Routledge.
- Elder, G.H., E.K. Pavalko, and E.C. Clipp. 1993. *Working with archival data: studying lives*. Newbury Park, CA: Sage Publications.
- Ele, P.U. and C.C. Ibeh. 2001. "Influence of Family and Social Ties on Cigarette Smoking in Young Nigerian Females." *Indian Journal of Allergy Asthma and Immunology* 15(2):97-101.
- Fagan, A.A. and J.M. Najman. 2003. "Sibling influences on adolescent delinquent behavior: An Australian longitudinal study." *Journal of Adolescence* 26(5):546-558.
- Fagan, A.A. and J.M. Najman. 2005. "The relative contributions of parental and sibling substance use to adolescent tobacco, alcohol, and other drug use." *Journal of Drug Issues* 35:869-884.
- Feigelman, W. and J.A. Lee. 1995. "Patterns of Cigarette Use Among Black and White Adolescents." *The American Journal on Addictions* 4(3):215-225.
- Feinberg, M.E. and E.M. Hetherington. 2001. "Differential parenting as a within-family variable." *Journal of Family Psychology* 15(1):22-37.
- Feinberg, M.E. and M.E. Hetherington. 2000. "Sibling Differentiation in Adolescence: Implications for Behavioral Genetic Theory." *Child Development* 71(6):1512-1524.
- Feinberg, M.E., S.M. McHale, A.C. Crouter, and P. Cumsille. 2003. "Sibling Differentiation: Sibling and Parent Relationship Trajectories in Adolescence." *Child Development* 74(5):1261-1274.
- Feinberg, M. E., Neiderhiser, J. M., Simmens, S., Reiss, D., & Hetherington, E. M. 2000. Sibling comparison of differential parental treatment in adolescence: Gender, self-esteem, and emotionality as mediators of the parenting-adjustment association. *Child Development* 71: 1611-1628.
- Festinger, L.A. 1954. "A theory of social comparison processes." *Human Relations* 7:117-140.
- Fielding, N.G. 2004. "Getting the most from archived qualitative data: epistemological, practical and professional obstacles." *International Journal of Social Research Methodology* 7(1):94-104.
- Fitzpatrick, M.A. and D.M. Badzinski. 1985. "All in the family: Interpersonal communication in kind relationships." (2nd ed.) Pp. 687-771 in *Handbook of*

Interpersonal Communication., edited by M.L. Knapp and G.R. Miller. Thousand Oaks, CA: Sage.

Fitzpatrick, M.A. and J.P. Caughlin. 2002. "Interpersonal communication in family relationships." Pp. 726-777 in *Handbook of interpersonal communication*, edited by M.L. Knapp and J.A. Daly. Thousand Oaks, CA: Sage.

Flick, U. 1998. *An introduction to qualitative research: theory, method and applications*. London: Sage.

Floyd, K. 1996. "Communicating closeness among siblings: An application of the gendered closeness perspective." *Communication Research Reports* 13(1):27-34.

Floyd, K. and M.R. Parks. 1995. "Manifesting closeness in the interactions of peers: A look at siblings and friends." *Communication Reports* 8(2):69-76.

Folwell, A.L., L.C. Chung, J.F. Nussbaum, L.S. Bethea, and J.A. Grant. 1997. "Differential accounts of closeness in older adult sibling relationships." *Journal of Social and Personal Relationships* 14:843-849.

Fortes, M. 1950. "Kinship and marriage among the Ashanti." in *African System of Kinship and Marriage.*, edited by A.R. Radcliffe-Brown and D. Forde. London: Oxford University Press.

Foster, H.J. 1983. "African Patterns in the Afro-American Family." *Journal of Black Studies* 14(2):201-232.

Fowler, C. 2009. "Motives for Sibling Communication Across the Lifespan." *Communication Quarterly* 57(1):51-66.

Fox, G.L. 1981. "The Family's Role in Adolescent Sexual Behaviour." in *Teenage Pregnancy in a Family Context: Implications for Policy.*, edited by T. Ooms. Philadelphia: Temple University Press.

Furman, W. 1995. "Parenting siblings." Pp. 143-162 in *Handbook of parenting: Vol. 1: Children and parenting*, edited by M.H. Bornstein. Hillsdale, NJ: Erlbaum.

Furman, W. and D. Buhrmester. 1985. "Children's perceptions of the qualities of sibling relationships." *Child Development* 56:448-461.

Furman, W. and D. Buhrmester. 1992. "Age and sex differences in perceptions of networks of personal relationships." *Child Development* 63:103-115.

Furstenberg, F.F., Jr. 1980. "Burdens and benefits: the impact of early childbearing on the family." *Journal of Social Issues* 36(1):64-87.

- Furstenberg, F.F., Jr., J.A. Levine, and J. Brooks-Gunn. 1990. "The Children of Teenage Mothers: Patterns of Early Childbearing in Two Generations." *International Family Planning Perspectives* 22(2):54-61.
- Gaines, S.O., M.A. Rugg, S.E. Zemore, J.L. Armm, N. Yum, A. Law, J.M. Underhill, and K. Feldman. 1999. "Gender-related personality traits and interpersonal resource exchange among brother-sister relationships." *Personal Relationships* 6:187-198.
- Gaiser, T. 1997. "Conducting on-line focus groups." *Social Science Computer* 15:135-144.
- Gallagher, P.A., T.H. Powell, and C.A. Rhodes. 2006. *Brothers and sisters: A special part of exceptional families* Baltimore, MD: Paul H. Brooks.
- Gee, C.B., M.J. Nicholson, L.N. Osborne, and J.E. Rhodes. 2003. "Support and Strain in Pregnant and Parenting Adolescents' Sibling Relationships." *Journal of Adolescent Research* 18(1):25-35.
- Geertz, C. 1973. "Thick description: toward an interpretive theory of culture." Pp. 3-30 in *The Interpretation of Cultures*, edited by C. Geertz. New York: Basic Books.
- Gerson, K. 2009. *The unfinished revolution: How a new generation is reshaping family, work, and gender in America*. New York: Oxford University Press.
- Ghana Statistical Service (GSS), Ghana Health Service (GHS), and ICF Macro. 2009. Ghana Demographic and Health Survey 2008. Accra, Ghana: GSS, GHS, and ICF Macro.
- Ghana Statistical Service (GSS), Ghana Health Service (GHS), and ICF Macro. 2004. Ghana Demographic and Health Survey 2003. Accra, Ghana: GSS, GHS, and ICF Macro.
- Ghana Statistical Service (GSS).1994. Ghana Demographic and Health Survey 1993. Accra, Ghana: Ghana Statistical Service.
- Ghana Statistical Service (GSS) and Macro International Inc. (MI). 1999. Ghana Demographic and Health Survey 1998. Calverton, Maryland: GSS and MI.
- Gibbs, B.G. 2005. "Sibling Influence on Adolescent Alcohol, Cigarette and Marijuana Use."
- Gillies, V.and R. Edwards. 2005. "Secondary Analysis in Exploring Family and Social Change: Addressing the Issue of Context." *Forum: Qualitative Social Research* 6(1):Art. 44.

- Gladstone, B.M., T. Volpe, and K.M. Boydell. 2007. "Issues Encountered in a Qualitative Secondary Analysis of Help-Seeking in the Prodrome to Psychosis." *Journal of Behavioral Health Services & Research* 34(4):431-442.
- Glaser, B.G. and A.L. Strauss. 1967. *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine.
- Gleit, C. and B. Graham. 1989. "Secondary data analysis: A valuable resource." *Nursing Research* 38(6):380-381.
- Goetting, A. 1986. "The developmental tasks of siblingship over the lifecycle." *Journal of Marriage and the Family* 48(4):703-714.
- Government of Ghana (GoG). 1994. National Population Policy (Revised 1994). Accra, Ghana: National Population Council.
- Government of Ghana (GoG). 2000. "Adolescent Reproductive Health Policy." Accra, Ghana: Ghana National Population Council.
- Grotevant, H. 1978. "Sibling constellations and sex-typing of interests in adolescence." *Child Development* 49(2):540-542.
- Gupta, N. and L. Costa. 1993. "Adolescent Fertility Behavior: Trends and Determinants in Northeastern Brazil." *International Family Planning Perspectives* 25:125-130.
- Guttmacher Institute. 2004. "Ghana In-Depth Methodology". Accessed December 28, 2007.
- Guttmacher, Institute. 2004. "Ghana FGD Methodology Summary". Accessed December 28, 2007.
- Hall, J.A., S.W. Henggeler, D.K. Ferreira, and P.L. East. 1992. "Sibling relations and substance use in high-risk female adolescents." *Family Dynamics of Addiction Quarterly* 2:44-51.
- Hammersley, M. 2010. "Can We Re-Use Qualitative Data Via Secondary Analysis? Notes on Some Terminological and Substantive Issues." *Sociological Research Online* 15(1):5.
- Hardy, J.B. 1999. "Like mother, like child: intergenerational patterns of age at first birth and associations with childhood and adolescent characteristics and adult outcomes in the second generation." *Developmental Psychology* 34(6):1220-1232.

- Haurin, J.R. and F.L. Mott. 1990. "Adolescent Sexual Activity in the Family Context: The Impact of Older Siblings." *Demography* 27(4):537-557.
- Haynie, D.L. and S. McHugh. 2003. "Sibling deviance: In the shadows of mutual and unique friendship effects?" *Criminology* 41(2):355-392.
- Heaton, J. 1998. "Secondary analysis of qualitative data." *Social Research Update* 22.
- Heaton, J. 2004. *Reworking Qualitative Data*. London: Sage.
- Hernandez, D.J. 1997. "Child development and the social demography of childhood." *Child Development* 68(1):149-169.
- Hertwig R., D.J.N., Sulloway F.J. 2002. "Parental investment: How an equity motive can produce inequality." *Psychological Bulletin* 128:728-745.
- Hetherington, M.E. 1994. "Siblings, Family Relationships, and Child Development." *Journal of Family Psychology* 8(3):251-253.
- Hill, N.E., V.M. Murry, and V.D. Anderson. 2005. "Sociocultural contexts of African American families." Pp. 21-44 in *African American family life: Ecological and cultural diversity.*, edited by V.C. McLoyd, N.E. Hill, and K.A. Dodge. New York: The Guilford Press.
- Hinde, R. 1979. *Towards understanding relationships*. London: Academic Press.
- Hinds, P.S., R.J. Vogel, and L. Clarke-Steffen. 1997. "The possibilities and pitfalls of doing secondary analysis of a qualitative data set." *Qualitative Health Research* 7(3):408-424.
- Hofferth, S.L. 2005. "Secondary Data Analysis in Family Research." *Journal of Marriage and Family* 67(4):891-907.
- Hogan, D.P. and E.M. Kitagawa. 1985. "The impact of social status, family structure, and neighborhood on the fertility of Black adolescents." *American Journal of Sociology* 91:825-855.
- Holloway, I. 1997. *Basic concepts for qualitative research*. Oxford: Blackwell Science.
- Holstein, J.A. and J.F. Gubrium. 2004. "Context: working it up, down, and across." Pp. 279-311 in *Qualitative Research Practice*, edited by C. Seal, J. Gobo, J. Gubrium, and D. Silverman. London: Sage.

- Honey, A., S. Clarke, C. Halse, M. Kohn, and S. Madden. 2006. "The Influence of Siblings on the Experience of Anorexia Nervosa for Adolescent Girls." *European Eating Disorders Review* 14:315-322.
- Howe, N., J. Aquan-Assee, W.M. Bukowski, P.M. Lehoux, and C.M. Rinaldi. 2001. "Siblings as confidants: Emotional understanding, relationship warmth, and sibling self-disclosure." *Social Development* 10:439-454.
- Jacobson, A.F., P. Hamilton, and J. Galloway. 1999. "Obtaining and evaluating data sets for secondary analysis in nursing research." *Western Journal of Nursing Research* 15:483-494.
- Jenkins, J. M., and Smith, M. A. (1990). Factors protecting children living in disharmonious homes: Maternal reports. *Journal of the American Academy of Child and Adolescent Psychiatry*, 29, 60-69.
- Jenkins, J.M. 1992. "Sibling relationships in disharmonious homes." Pp. 125-138 in *Children's sibling relationships: Developmental and Clinical Issues.*, edited by F. Boer and J. J. Dunn. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Jessor, R. and S.L. Jessor. 1977. *Problem behavior and psychological development: A longitudinal study of youth*. New York: Academic Press.
- Kaberege, N., N. Modeste, S. Montgomery, and C.A. Fox. 2003. "Exploring family factors and sexual behaviors in a group of black and Hispanic adolescent males." *American Journal of Health Behavior* 27(1):63-74.
- Karim, A.M., R.J. Magnani, G.T. Morgan, and K.C. Bond. 2003. "Reproductive Health Risk and Protective Factors among Unmarried Youth in Ghana." *International Family Planning Perspectives* 29(1):14-24.
- Kayongo-Male, D. and P. Onyango. 1984. *The Sociology of the African Family*. New York: Longman.
- Keller, H. 2000. "Developmental Psychology I: Prenatal to Adolescence." Pp. 235-260 in *International Handbook of Psychology.*, edited by K. Pawlik and M.R. Rosenzweig. London: Sage.
- Kelly, A.B., M. O'Flaherty, J.P. Connor, R. Homel, J.W. Toumbourou, G.C. Patton, and J. Williams. 2011. "The influence of parents, siblings and peers on pre- and early-teen smoking: A multilevel model." *Drug and Alcohol Review* 30(4):381-387.
- Kenny, A.J. 2005. "Interaction in cyberspace: an online focus group." *Methodological Issues in Nursing Research* 49(4):414-422.

- Khan, S. and V. Mishra. 2008. "Youth Reproductive and Sexual Health." in *DHS Comparative*: Calverton, Maryland, USA: Macro International Inc.
- Khoo, S.T. and B. Munthén. 2000. "Longitudinal data on families: Growth modeling alternatives." Pp. 43-78 in *Multivariate applications in substance use research: New methods for new questions.*, edited by J.S. Rose, L. Chassin, C.C. Presson, and S.J. Sherman. Hillsdale, NJ: Erlbaum.
- Kidd, P. and M. Parshall. 2000. "Getting the focus and the group: Enhancing analytical rigor in focus group research." *Qualitative Health Research* 10:293-308.
- Kidwell, J.S. 1982. "The neglected birth order: Middleborns." *Journal of Marriage and the Family* 44: 225-235.
- Kiesner, J. and M. Kerr. 2004. "Families, peers, and contexts as multiple determinants of adolescent problem behavior." *Journal of Adolescence* 27:493-495.
- Kim, J.Y., S.M. McHale, A.C. Crouter, and D.W. Osgood. 2007. "Longitudinal linkages between sibling relationships and adjustment from middle childhood through adolescence." *Developmental Psychology* 43(4):960-973.
- Kiragu, K., E. Obwaka, D. Odallo, and C. Van Hulzen. 1996. "Communicating about sex: adolescents and parents in Kenya." *AIDS/STD Health Promotion Exchange* 3:11-13.
- Kirby, D. 1999. "Antecedents of Adolescent Sexual Risk-Taking, Pregnancy and Childbearing: Implications for Research and Programs." Washington, DC.
- Kirby, D. 2001. "Emerging Answers." Washington, D.C.: National Campaign to Prevent Teen Pregnancy.
- Kitzinger, J. 1994. "The methodology of focus groups: the importance of interactions between research participants." *Sociology of Health and Illness* 16:103-121.
- Knapp, T.R. 1998. *Quantitative nursing research*. Thousand Oaks, CA: Sage Publications.
- Knight, G. and S. Kagan. 1982. "Siblings, Birth Order, and Cooperative-Competitive Social Behavior: A Comparison of Anglo-American and Mexican-American Children." *Journal of Cross-Cultural Psychology* 13(2):239-249.
- Koch, H.L. 1954. "The Relation of Primary Mental Ability in Five- and Six-Year-Olds to Sex and Characteristics of His Siblings." *Child Development* 25:209-223.

Koch, H.L. 1960. "The Relation of Certain Formal Attributes of Siblings to Attitudes Held Toward Each Other and Toward Their Parents." Indiana: Society for Research in Child Development.

Kornreich, J.L., K.D. Hearn, G. Rodriguez, and L.F. O'Sullivan. 2003. "Sibling influence, gender roles, and the sexual socialization of urban early adolescent girls." *The Journal of Sex Research* 40(1):101-110.

Kowal, A. and L. Kramer. 1997. "Children's understanding of parental differential treatment." *Child Development* 68(1):113-126.

Kowal, A.K. and L. Blinn-Pike. 2004. "Sibling Influences on Adolescents' Attitudes Toward Safe Sex Practices." *Family Relations* 53(4):377-384.

Kramer, L. and L. Bank. 2005. "Sibling relationship contributions to individual and family well-being: introduction to the special issue." *Journal of Family Psychology* 19(4):483-485.

Krueger, R.A. 1994. *Focus groups: A practical guide for applied research*. Thousand Oaks, CA: Sage Publications.

Krueger, R.A. and M.A. Casey. 2000. *Focus Groups: a practical guide for applied research*: Sage Publications.

Kumi-Kyereme, A., K. Awusabo-Asare, and A.E. Biddlecom. 2007a. "Adolescents' Sexual and Reproductive Health: Qualitative Evidence from Ghana." Guttmacher Institute.

Kumi-Kyereme, A., K. Awusabo-Asare, A.E. Biddlecom, and A. Tanle. 2007b. "Influence of Social Connectedness, Communication and Monitoring on Adolescent Sexual Activity in Ghana." *African Journal of Reproductive Health* 11(3):133-147.

Kynaston, D. 2005. "The Uses of Sociology for Real-time History." *Forum: Qualitative Social Research* 6(1):Art. 45.

Lamb, M. and B. Sutton-Smith. 1982. *Sibling Relationships: Their Nature and Significance across the Life Span*. Hillsdale, NJ: Lawrence Erlbaum Associates.

LaRossa, R. 2005. "Grounded theory methods and qualitative family research." *Journal of Marriage and Family* 67(3):837-857.

Lazarsfeld, P. and R.K. Merton. 1954. "Friendship as a Social Process: A Substantive and Methodological Analysis." Pp. 18-66 in *Freedom and Control in Modern Society*, edited by M. Berger, T. Abel, and C.H. Page. New York: Van Nostrand.

- Leech, N.L. and A.J. Onwuegbuzie. 2007. "An array of qualitative data analysis tools: A call for qualitative data analysis triangulation." *School Psychology Quarterly* 22:557-584.
- Leininger, M. 1992. "Current issues, problems, and trends to advance qualitative paradigmatic research methods for the future." *Qualitative Health Research* 2:392-415.
- Leventhal, G.S. 1970. "Influence of brothers and sisters on sex-role behaviors." *Journal of Personality & Social Psychology* 16:452-465.
- Levy, D. and G.J. Duncan. 2000. "Using Sibling Samples to Assess the Effect of Childhood Family Income on Completed Schooling." Working paper. Accessed March 16, 2011: <http://econpapers.repec.org/paper/wopjopovw/168.htm>.
- Li, M.D., R. Cheng, J.Z. Ma, and G.E. Swan. 2003. "A meta-analysis of estimated genetic and environmental effects on smoking behavior in male and female adult twins." *Addiction* 98:23-31.
- Lincoln, Y.S. and E.G. Guba. 1985. *Naturalistic Inquiry*. Beverley Hills: Sage.
- Lindert, P.H. 1977. "Sibling position and achievement." *The Journal of Human Resources* 12:198-219.
- Lloyd, C. 2005. *Growing Up Global: The Changing Transitions to Adulthood in Developing Countries*. Washington, DC: National Research Council.
- Lobo, M.L. 1986. "Secondary analysis as a strategy for nursing research." Pp. 295-304 in *Nursing research methodology: issues and implementation*, edited by P.L. Chinn. Rockville, MD: Aspen Publishers, Inc.
- Long, K.A. and C. Weinert. 1992. "Descriptions and perceptions of health among rural and urban adults with multiple sclerosis." *Research in Nursing & Health* 15(5):335-342.
- Longmore, M.A., W.D. Manning, and P.C. Giordano. 2001. "Preadolescent parenting strategies and teens' dating and sexual initiation: A longitudinal analysis." *Journal of Marriage and Family* 63:322-336.
- Longstreth, L.E., G.V. Longstreth, C. Ramirez, and G. Fernandez. 1975. "The ubiquity of big brother." *Child Development* 46:769-772.
- Loury, L.D. 2003. "Siblings and gender differences in African-American college attendance." *Economics of Education Review* 23:213-219.

Maccoby, E.E. 1998. *The two sexes: Growing up apart, coming together*. Cambridge, MA: Harvard University Press.

Maccoby, E.E. and J.A. Martin. 1983. "Socialization in the context of the family: Parent-child interaction." Pp. 1-101 in *Handbook of Child Psychology*, edited by P.H. Mussen. New York: Wiley.

Maddox, S.J. and R.J. Prinz. 2003. "School bonding in children and adolescents: Conceptualization, assessment, and associated variables." *Clinical Child and Family Psychology Review* 6(1):31-49.

Mahy, M. and N. Gupta. 2003. "Adolescent childbearing in sub-Saharan Africa." *Demographic Research* 8(4):93-106.

Marshall, M. 1983. *Siblingship in Oceania: Studies in the Meaning of Kin Relations*. Lanham, MD: University Press of America.

Martin, M.M., C.M. Anderson, and T.P. Mottet. 1997. "The relationship between perceived understanding and self-disclosure in the sibling relationship." *Communication Research Reports* 14:331-338.

Martin, M.M., C.M. Anderson, and K.A. Rocca. 2005. "Perceptions of the adult sibling relationship." *North American Journal of Psychology* 7(1):107-116.

Masten, A.S., J.D. Coatsworth, J. Neemann, S.D. Gest, A. Tellegen, and N. Garmezy. 1995. "The structure and coherence of competence from childhood through adolescence." *Child Development* 66(6):1635-1659.

Mauthner, N.S., O. Parry, and K. Backett-Milburn. 1998. "The data are out there, or are they? Implications for archiving and revisiting qualitative data." *Sociology* 32(4).

Maxwell, J.A. 2005. *Qualitative research design: An interactive approach*. Newbury Park, CA: Sage.

Maynard, A.E. 2002. "Cultural teaching: The development of teaching skills in Maya sibling interactions." *Child Development* 73(3):969-982.

McCracken, G. 1988. "The Long Interview." in *Sage University Paper Series on Qualitative Research Methods*. Newbury Park, Calif.: Sage.

McGue, M., A. Sharma, and P. Benson. 1995. "Parent and sibling influences on adolescent alcohol use and misuse: Evidence from a US adoption cohort." *Journal of Studies on Alcohol* 57(1):8-18.

McGuire, S., J. Dunn, and R. Plomin. 1995. "Maternal differential treatment of siblings and children's behavioral problems." *Development and Psychopathology* 7:515-528.

McHale, S.M. and T.M. Pawletko. 1992. "Differential treatment of siblings in two family contexts." *Child Development* 63:68-81.

McHale, S.M. and A.C. Crouter. 1996. "The family contexts of children's sibling relationships." Pp. 173-195 in *Sibling Relationships: Their Causes and Consequences.*, edited by G.H. Brody. Norwood, NJ: Ablex Publishing.

McHale, S.M., K.A. Updegraff, J. Jackson-Newsome, C.J. Tucker, and A.C. Crouter. 2000a. "When does parents' differential treatment have negative implications for siblings?" *Social Development* 9(2):149-172.

McHale, S.M., K.A. Updegraff, C.J. Tucker, and A.C. Crouter. 2000b. "Step in or stay out? Parents' role in adolescents' sibling relationships." *Journal of Marriage and the Family* 62:746-760.

McHale, S.M., K.A. Updegraff, C.J. Tucker, and A.C. Crouter. 2000c. "Step in or stay out? Parents' roles in adolescent siblings' relationships." *Journal of Marriage and the Family* 62:746-761.

McHale, S.M., D.A. Corneal, A.C. Crouter, and L.L. Birch. 2001a. "Gender and weight concerns in early and middle adolescence: Links with well-being and family characteristics." *Journal of Clinical Child Psychology* 30:338-348.

McHale, S.M., K.A. Updegraff, H. Helms-Erickson, and A.C. Crouter. 2001b. "Sibling influences on gender development in middle childhood and early adolescence: A longitudinal study." *Developmental Psychology* 37:115-125.

McHale, S.M., K.A. Updegraff, L. Shanahan, A.C. Crouter, and S.E. Killoren. 2005. "Siblings' Differential Treatment in Mexican American Families." *Journal of Marriage and Family* 67:1259-1274.

McHale, S.M., A.C. Crouter, J.Y. Kim, L. Burton, K. Davis, A.M. Dotterer, and D.P. Swanson. 2006a. "Mothers' and fathers' racial socialization in African American families: Inter-parental linkages and implications for offspring." *Child Development* 77:1387-1402.

McHale, S.M., J.Y. Kim, and S.D. Whiteman. 2006b. "Sibling relationships in childhood and adolescence." Pp. 127-150 in *Close relationships.*, edited by P. Noller and J. Feeney. New York: Psychology Press.

- McHale, S.M., S.D. Whiteman, J.Y. Kim, and A.C. Crouter. 2007. "Characteristics and Correlates of Sibling Relationships in Two-Parent African American Families." *Journal of Family Psychology* 21(2):227-235.
- McHale, S.M., J. Bissell, and J.Y. Kim. 2009. "Sibling Relationship, Family, and Genetic Factors in Sibling Similarity in Sexual Risk." *Journal of Family Psychology* 23(4):562-572.
- McNeely, C.A., M. Shew, T. Beuhring, R. Sieving, B. Miller, and W.R. Blum. 2002. "Mothers' Influence on Adolescents' Sexual Debut." *Journal of Adolescent Health* 31(3):256-265.
- Mead, M. 1963. "Socialization and enculturation." *Current Anthropology* 4(2):184-188.
- Medjedović, I. and A. Witzel. 2005. "Secondary Analysis of Interviews: Using Codes and Theoretical Concepts From the Primary Study." *Forum: Qualitative Social Research* 6(1):Art. 46.
- Meek, R. 2008. "Experiences of Younger Siblings of Young Men in Prison." *Children & Society* 22:265-277.
- Mensch, B. 1999. "The changing nature of adolescence in Kassena-Nankana district of northern Ghana." *Studies in Family Planning* 30(2):95-111.
- Merton, R.K., M. Fiske, and P. Kendall. 1956. *The Focused Interview: A Manual of Problems & Procedures*. Glencoe, IL: Free Press.
- Meyer-Weitz, A., P. Reddy, H. Ven den Borne, G. Kok, and J. Pietersen. 2000. "The determinants of health care seeking behaviour of adolescents attending STD clinics in South Africa." *Journal of Adolescent Health* 23(6):741-752.
- Michalski, R.L. and T.K. Shackelford. 2001. "Methodology, birth order, intelligence, and personality." *American Psychologist* 56:520-521.
- Milevsky, A. and M.J. Levitt. 2005. "Sibling support in early adolescence: Buffering and compensation across relationships." *European Journal of Developmental Psychology* 3(3):299-320.
- Miller, B.C. and C.R. Bingham. 1989. "Family configuration in relation to the sexual behavior of female adolescents." *Journal of Marriage and the Family* 51(2):499-506.
- Miller, B.C. and T.B. Heaton. 1991. "Age at First Sexual Intercourse and the Timing of Marriage and Childbirth." *Journal of Marriage and the Family* 53(3):719-732.

Miller, B.C., M.C. Norton, T. Curtis, E.J. Hill, P. Schvaneveldt, and M.H. Young. 1997. "The timing of sexual intercourse among adolescents: Family, peer, and other antecedents." *Youth & Society* 29:54-83.

Miller, B.C., B. Benson, and K.A. Galbraith. 2001. "Family Relationships and Adolescent Pregnancy Risk: A Research Synthesis." *Developmental Review* 21(1):1-38.

Miller, B.C. 2002. "Family Influences on Adolescent Sexual and Contraceptive Behavior." *Journal of Sex Research* 39(1):22-26.

Milne, F. and D.S. Judge. 2009. "Birth order influences reproductive measures in Australians." *Human Nature* 20(3):294-316.

Minnett, A.M., D.L. Vandell, and J.W. Santrock. 1983. "The Effects of Sibling Status on Sibling Interaction: Influence of Birth Order, Age Spacing, Sex of Child, and Sex of Sibling." *Child Development* 54(4):1064-1072.

Mmari, K. and R.W. Blum. 2009. "Risk and protective factors that affect adolescent reproductive health in developing countries: A structural literature review." *Global Public Health* 4(4):350-366.

Moore, A.M., K. Awusabo-Asare, N. Madise, J. John-Langba, and A. Kumi-Kyereme. 2007. "Coerced First Sex among Adolescent Girls in Sub-Saharan Africa: Prevalence and Context." *African Journal of Reproductive Health* 11(3):62-82.

Morgan, D.L. 1997. *Focus groups as qualitative research*. London: Sage Publications.

Morgan, D.L. 1998. "Practical strategies for combining qualitative and quantitative methods: Applications to health research." *Qualitative Health Research* 8(3):362-376.

Morrongiello, B.A. and M.D. Bradley. 1997. "Sibling power: influence of older siblings' persuasive appeals on younger siblings' judgements about risk taking behaviours." *Injury Prevention* 3:23-28.

Morse, J.M. 1994. "Emerging from the data": the cognitive processes of analysis in qualitative inquiry." Pp. 23-43 in *Critical issues in qualitative research methods*, edited by J.M. Morse. Thousand Oaks, CA: Sage.

Morse, J.M. 1995. "The significance of saturation." *Qualitative Health Research* 5(2):147-149.

- Morse, J.M. 2003. "Principles of mixed methods and multimethod research design." Pp. 189–208 in *Handbook of mixed methods in social and behavioral research*, edited by A. Tashakkori and C. Teddlie. Thousand Oaks, CA: Sage.
- Moustakas, C. 1994. *Phenomenological research methods*. Thousand Oaks, CA: Sage.
- Munthree, C. 2009. "Life Transitions of Young Women and the Influence of Older Sisters: Adolescent Sexual Behaviour and Childbearing in South Africa." Dissertation. University of Kwazulu-Natal.
- Murdock, G.P. 1968. "Patterns of Sibling Terminology." *Ethnology* 7(1):1-24.
- Mweru, M. 2005. *Sibling Caretaking Among the Agikuyu of Kenya*. Marburg: Tectum Verlag.
- Myers, S.A. 1998. "Sibling communication satisfaction as a function of interpersonal solidarity, individualized trust, and self-disclosure." *Communication Research Reports* 15(3):309-317.
- Nabila, J.S., C. Fayorsey, and M. Pappoe. 1997. "Youth and Reproductive Health in Africa: Assessment of Adolescent Reproductive Health Needs in Ghana." Accra, Ghana: UNFPA.
- Needle, R., H. McCubbin, M. Wilson, R. Reineck, A. Lazar, and H. Mederer. 1986. "Interpersonal influences in adolescent drug use--the role of older siblings, parents, and peers." *International Journal of Addiction* 21(7):739-766.
- Nerlove, S. and S.K. Romney. 1967. "Sibling terminology and cross-sex behavior." *American Anthropologist* 69:179-187.
- Niehaus, I. 1994. "Disharmonious spouses and harmonious siblings: conceptualizing household formation among urban residents in Qwaqwa" *African Studies* 53(1):115-135 .
- Noller, P. 2005. "Sibling relationships in adolescence: Learning and growing together." *Personal Relationships* 12:1-22.
- Notz, P. 2005. "Secondary Qualitative Analysis of Interviews. A Method Used for Gaining Insights into the Work/Life Balance of Middle Managers in Germany." *Forum: Qualitative Social Research* 6(1):Art. 34.
- Nuckolls, C.W. and M.V. Krishnayya. 2010. "Siblings and Spouses in the Context of Culture." *Journal of Family Theory & Review* 2(4):388-400.
- Nukunya, G.K. 1969. *Kinship and Marriage Among the Anlo-Ewe*. New York: Athlone Press.

- O'Brien, K.M. and N.R. Crick. 1995. *The Sibling Qualities Measure*. Minneapolis: University of Minnesota.
- O'Connor, T.G., J. Dunn, J.M. Jenkins, K. Pickering, and J. Rasbash. 2001. "Family settings and children's adjustment: Differential adjustment within and across families." *British Journal of Psychiatry* 179:110-115.
- O'Connor, H. and C. Madge. 2003. "'Focus groups in cyberspace': using the Internet for qualitative research." *Qualitative Market Research: An International Journal* 6(2):133-143.
- Oettinger, G.S. 2000. "Sibling similarity in high school graduation outcomes: causal interdependency or unobserved heterogeneity?" *South Econ J* 66(3):631-648.
- Olenick, I. 1998. "Adolescents with Sexually Active Older Siblings are Likely to Have Sex Early." *Family Planning Perspectives* 30(3):149-150.
- Olneck, M.R. and D.B. Bills. 1979. "Family configuration and achievement: effects of birth order and family size in a sample of brothers." *Soc Psychol Q* 42(2):135-148.
- Onwuegbuzie, A.J., W.B. Dickinson, N.L. Leech, and A.G. Zoran. 2009. "A Qualitative Framework for Collecting and Analyzing Data in Focus Group Research." *International Journal of Qualitative Methods* 8(3):1-21.
- Onwuegbuzie, A.J., R.B. Johnson, and K.M.T. Collins. 2009. "A call for mixed analysis: A philosophical framework for combining qualitative and quantitative." *International Journal of Multiple Research Methods* 3:114-139.
- Opare, J.A. 2003. "Kayayei: the women head porters of southern Ghana." *Journal of Social Development in Africa* 18(2):33-48.
- Opong, C. 1987. *Sex Roles, Population and Development in West Africa*. Portsmouth, NH: Heinemann.
- Paik, S.J. and H.J. Walberg. 2007. *Narrowing the achievement gap: Strategies for educating Latino, Black, and Asian students*. New York: Springer.
- Parker, A. and J. Tritter. 2006. "Focus group method and methodology: current practice and recent debate." *International Journal of Research and Method in Education* 29(1):23-37.
- Patterson, G.R. 1984. "Siblings: Fellow travelers in coercive family processes." Pp. 174-214 in *Advances in the study of aggression.*, edited by R.J. Blanchard. New York: Academic Press.

- Patterson, G.R., J.B. Reid, and T.J. Dishion. 1992. *A social learning approach: IV. Antisocial boys*. Eugene, OR: Castalia.
- Peters, D.A. 1993. "Improving quality requires consumer input: Using focus groups." *Journal of Nursing Care Quality* 7:34-41.
- Petersen, A.C. and B. Taylor. 1980. "The biological approach to adolescence: biological change and psychological adaptation." Pp. 117-158 in *Handbook of adolescent psychology*, edited by J. Adelson. New York: Wiley.
- Pike, A., J. Coldwell, and J.F. Dunn. 2005. "Sibling relationships in early/middle childhood: Links with individual adjustment." *Journal of Family Psychology* 19:523-532.
- Plomin, R., H.M. Chipuer, and J.M. Neiderhiser. 1994. "Behavioural genetic evidence for the importance of nonshared environment." Pp. 1-31 in *Separate social worlds of siblings: the impact of non-shared environment on development*, edited by E.M. Hetherington, D. Reiss, and R. Plomin. Hillsdale, NJ: Lawrence Erlbaum.
- Plomin, R. and D. Daniels. 1987. "Why are children in the same family so different from one another?" *Brain and Behavioral Sciences* 10:1-60.
- Pollard, J.A., J.D. Hawkins, and M.W. Arthur. 1999. "Risk and protection: Are both necessary to understand diverse behavioral outcomes in adolescence?" *Social Work Research* 23(3):145-158.
- Pomery, E.A., F.X. Gibbons, M. Gerrard, M.J. Cleveland, G.H. Brody, and T.A. Wills. 2005. "Families and risk: prospective analyses of familial and social influences on adolescent substance use." *Journal of Family Psychology* 19(4):560-570.
- Powers, D.A. and J.C. Hsueh. 1997. "Sibling models of socioeconomic effects on the timing of first premarital birth." *Demography* 34(4):493-511.
- Price, J. 2008. "Parent-child quality time: does birth order matter?" *Journal of Human Resources* 43(1):240-265.
- Pulakos, J. 1987. "Brothers and sisters: Nature and importance of the adult bond." *The Journal of Psychology* 121(5):521-522.
- Rabain-Jamin, J., A. Maynard, and P. Greenfield. 2003. "Implications of Sibling Caregiving for Sibling Relations and Teaching Interactions in Two Cultures." *Ethos* 31(2):204-231.

- Rabiee, F. 2004. "Focus-group interview and data analysis." *Proceedings of the Nutrition Society* 63:655–660.
- Rabiee, F. and D. Thompson. 2000. *Widening Participation – Increasing Access to Higher Education for Muslim Women*. Birmingham, UK: University of Central England and Birmingham.
- Race, K.E., D.F. Hotch, and T. Parker. 1994. "Rehabilitation program evaluation: use of focus groups to empower clients." *Evaluation Review* 18(6):730-740.
- Radcliffe-Brown, A.R. 1924. "The Mother's Brother in South Africa." *South African Journal of Science* 21:542-555.
- Rajan, K.B., B.G. Lerouz, A.V. Peterson, J.B. Bricker, M.R. Andersen, K.A. Kealey, and I.G. Sarason. 2003. "Nine-year prospective association between older siblings' smoking and children's daily smoking." *Journal of Adolescent Health* 33:25-30.
- Rani, M. and E. Lule. 2004. "Exploring the Socioeconomic Dimension of Adolescent Reproductive Health: A Multi-country Analysis." *International Family Planning Perspectives* 30(3):110-117.
- Ray, M.A. 1994. "The richness of phenomenology: philosophic, theoretic, and methodologic concerns." Pp. 117-133 in *Critical issues in qualitative research methods*. Thousand Oaks, CA: Sage.
- Reese, L.E., E.M. Vera, T.R. Simon, and R.M. Ikeda. 2000. "The role of families and care givers as risk and protective factors in preventing youth violence." *Clinical Child and Family Psychology Review* 3(1):61-77.
- Rende, R., C. Slomkowski, E. Lloyd-Richardson, and R. Niaura. 2005. "Sibling Effects on Substance Use in Adolescence: Social Contagion and Genetic Relatedness." *Journal of Family Psychology* 19(4):611-618.
- Rew, L., D. Koniak-Griffin, M.A. Lewis, M. Miles, and A. O'Sullivan. 2000. "Secondary Data Analysis: New Perspective for Adolescent Research." *Nursing Outlook* 48:223-229.
- Rocca, K.A. and M.M. Martin. 1998. "The relationship between willingness to communication and solidarity with frequency, breadth, and depth of communication the sibling relationship." *Communication Research Reports* 15(1):82-90.
- Rodgers, J.L. and D.C. Rowe. 1988. "Influence of siblings on adolescent sexual behavior." *Developmental Psychology* 24(5):722-728.

Rodgers, J.L. and D.C. Rowe. 1990. "Adolescent sexual activity and mildly deviant behavior: Sibling and friendship effects." *Journal of Family Issues* 11:274-293.

Rodgers, J.L., D.C. Rowe, and D.F. Harris. 1992. "Sibling Differences in Adolescent Sexual Behavior: Inferring Process Models from Family Composition Patterns." *Journal of Marriage and the Family* 54(1):142-152.

Rodgers, J.L., D.C. Rowe, and M. Buster. 1999. "Nature, nurture, and first sexual intercourse in the U.S.A.: Fitting behavioural genetic models to NLSY kinship data." *Journal of Biosocial Science* 31:29-41.

Rohde, P.A., K. Atzwanger, M. Butovskaya, A. Lampert, I. Mysterud, A. Sanchez-Andres, and F.J. Sulloway. 2003. "Perceived parental favoritism, closeness to kin, and the rebel of the family: The effects of birth order and sex." *Evolution and Human Behavior* 24:261-276.

Rowe, D.C., J.L. Rodgers, S. Meseck-Bushey, and C. St. John. 1989. "Sexual behavior and nonsexual deviance: A sibling study of their relationship." *Developmental Psychology* 25:61-69.

Rowe, D.C. and B.L. Gulley. 1992. "Sibling effects on substance use and delinquency." *Criminology* 30:217-233.

Rowe, D.C., M.R. Linver, and J.L. Rodgers. 1996. "Delinquency and IQ: Using siblings to find sources of variation." Pp. 147-172 in *Sibling relationships: Their causes and consequences.*, edited by G.H. Brody. Norwood, NJ: Ablex Publishing.

Rutherford, M.S. and K. Parker. 2003. "Inner Strength in Salvadorian Women: A Secondary Analysis." *Journal of Cultural Diversity* 10(1):6-10.

Rwenge, M. 2000. "Sexual Risk Behaviors Among Young People in Bamenda, Cameroon." *International Family Planning Perspectives* 26(3):118-123-130.

Salmon, C. 2003. "Birth order and relationships: Family, friends, and sexual partners." *Human Nature* 17:73-88.

Salmon, C.A. and M. Daly. 1998. "Birth order and familial sentiment: Middleborns are different." *Human Behavior and Evolution* 19:299-312.

Sandelowski, M. 2001. "Real qualitative researchers don't count: The use of numbers in qualitative research." *Research in Nursing & Health* 24:230-240.

- Sandelowski, M. 2008. "Theoretical saturation." Pp. 875-876 in *The Sage encyclopedia of qualitative methods*, edited by L.M. Given. Thousand Oaks, CA: Sage.
- Sanders, R. 2004. *Sibling Relationships: Theory and Issues for Practice*. Hampshire: Palgrave Macmillan.
- Santacroce, S., J.A. Deatrck, and S.W. Ledlie. 2000. "Secondary Analysis of Qualitative Data: A Means of Collaboration in HIV-Related Research." *Journal of the Association of Nurses in AIDS Care* 11(3):99-104.
- Saroglou, V. and L. Fiasse. 2003. "Birth order, personality, and religion: A study among young adults from a three-sibling family." *Personality and Individual Differences* 35:19-29.
- Scarr, S. 1992. "Developmental theories for the 1990s: Development and individual differences." *Child Development* 63:1-19.
- Schachter, F.F. 1982. "Sibling deidentification and split-parent identifications: A family tetrad." Pp. 123-152 in *Sibling Relationships: Their Nature and Significance across the Lifespan*, edited by M.E. Lamb and B. Sutton-Smith. Hillsdale, NJ: Lawrence Erlbaum.
- Schachter, F.F., E. Shore, S. Feldman-Rotman, R.E. Marquis, and S. Campbell. 1976. "Sibling deidentification." *Developmental Psychology* 12:418-427.
- Scharf, M., S. Shulman, and L. Avigad-Spitz. 2005. "Sibling Relationships in Emerging Adulthood and in Adolescence." *Journal of Adolescent Research* 20(1):64-90.
- Schegloff, E.A. 1997. "Whose Text? Whose Context?" *Discourse & Society* 8(2):165-187.
- Schultheiss, D.E.P., T.V. Palma, K.S. Predragovich, and J.M.J. Glasscock. 2002. "Relational Influences on Career Paths: Siblings in Context." *Journal of Counseling Psychology* 49(3):302-310.
- Schutt, R.K. 2009. *Investigating the social world: The process and practice of research*. Thousand Oaks, CA: Pine Forge.
- Sechrest, L. and S. Sidana. 1995. "Quantitative and qualitative methods: Is there an alternative?" *Evaluation and Program Planning* 18:77-87.
- Shanahan, L., J.Y. Kim, S.M. McHale, and A.C. Crouter. 2007. "Sibling Similarities and Differences in Time Use: A Pattern-Analytic, Within-Family Approach." *Social Development* 16(4):662-681.

- Shanahan, L., S.M. McHale, A.C. Crouter, and D.W. Osgood. 2008. "Linkages between parents' differential treatment, youth depressive symptoms, and sibling relationships." *Journal of Marriage and Family* 70:480-494.
- Shilts, L. 1991. "The Relationship of Early Adolescent Drug Use to Extracurricular Activities, Peer Influence, and Personal Attitudes." *Adolescence* 26 26(103):613-617.
- Shortt, J.W. and J.M. Gottman. 1997. "Closeness in young adult sibling relationships: Affective and physiological processes." *Social Development* 6:142-164.
- Silverman, D. 2001. *Interpreting qualitative data*. London: Sage.
- Sim, J. 1998. "Collecting and analyzing qualitative data: Issues raised by the focus group." *Journal of Advanced Nursing* 28:345-352.
- Singh, S. 1998. "Adolescent childbearing in developing countries: a global review." *Studies in Family Planning* 29(2):117-136.
- Singh, S. and J. Darroch. 1999. "Adolescent Pregnancy and Childbearing: Levels and Trends in Developed Countries." *Family Planning Perspectives* 2(1):14-23.
- Slaby, R.G. and K.S. Frey. 1975. "Development of gender constancy and selective attention to same-sex models." *Child Development* 46:849-856.
- Slomkowski, C., R. Rende, K. Conger, R. Simons, and R. Conger. 2001. "Sisters, brothers, and delinquency: evaluating social influence during early and middle adolescence." *Child Development* 72:271-283.
- Slomkowski, C., R. Rende, S. Novak, E. Lloyd-Richardson, and R. Niaura. 2005. "Sibling effects on smoking in adolescence: evidence for social influence from a genetically informative design." *Addiction* 100(4):430-438.
- Snyder, J., L. Bank, and B. Burraston. 2005. "The Consequences of anti-social behavior in older male siblings for younger brothers and sisters." *Journal of Family Psychology* 19:643-653.
- Soli, A.R., S.M. McHale, and M.E. Feinberg. 2009. "Risk and Protective Effects of Sibling Relationships Among African American Adolescents." *Family Relations* 58(5):578-592.
- Spencer, M.B. 1995. "Old issues and new theorizing about African- American youth: A phenomenological variant of ecological systems theory." Pp. 37-69 in *African-American youth: Their social and economic status in the United States.*, edited by R.L. Taylor. Westport, CT: Praeger.

Spitze, G. and K. Trent. 2006. "Gender Differences in Adult Sibling Relations in Two-Child Families." *Journal of Marriage and Family* 68:977-992.

Stage, F.K. 1992. "The case for flexibility in research and assessment of college students." Pp. 1-11 in *Diverse methods for research and assessment of college students.*, edited by F.K. Stage. Washington, DC: American College Personnel Association.

Steelman, L.C., B. Powell, R. Werum, and S. Carter. 2002. "Reconsidering the Effects of Sibling Configuration: Recent Advances and Challenges." *Annual Review of Sociology* 28:243-269.

Stevenson, G.D. and M.R. Lee. 2001. "The Negative Consequences of Heavy Drinking and Associated Disruptive Behaviors for Sibling Relationship Performance." *Sociological Spectrum* 21(4):507-532.

Stocker, C.M., R.A. Burwell, and M.L. Briggs. 2002. "Sibling conflict in middle childhood predicts children's adjustment in early adolescence." *Journal of Family Psychology* 16(1):50-57.

Stocker, C.M. and S.M. McHale. 1992a. "Links between sibling and parent-child relationships in early adolescence." *Journal of Personal and Social Relationships* 9:175-195.

Stocker, C.M. and S.M. McHale. 1992b. "The nature and family correlates of preadolescents' perceptions of their sibling relationships." *Journal of Social and Personal Relationships* 16(2):179-195.

Stoll, C.S. 1974. *Female & Male: Socialization, Social Roles, and Social Structure.* Dubuque, IA: Brown.

Stoneman, Z., G.H. Brody, and C.E. MacKinnon. 1986. "Same-Sex and Cross-Sex Siblings: Activity Choices, Roles, Behavior, and Gender Stereotypes." *Sex Roles* 15(9/10):495-511.

Stoneman, Z., & Brody, G. H. (1993). Sibling relations in the family context. In Z. Stoneman and P. W. Berman (Eds.), *The effects of mental retardation, disability, and illness on sibling relationships* (pp. 3-30). Baltimore: Brookes.

Stormshak, E., C. Bellanti, K. Bierman, and G. Conduct Problems Prevention Research. 1996. "The quality of siblings relationships and the development of social competence and behavioral control in aggressive children." *Developmental Psychology* 32:79-89.

- Strauss, A. and J. Corbin. 1998. *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks, CA: Sage.
- Sudarkasa, N. 1980. "African and African American family structure." *The Black Scholar* 2:37-60.
- Sulloway, F.J. 1996. *Born to rebel: Birth order, family dynamics, and creative lives*. New York: Pantheon Books.
- Sutton-Smith, B. and B. Rosenberg. 1970. *The sibling*. New York: Holt, Rinehart, & Winston.
- Szabo, V. and V.R. Strang. 1997. "Secondary analysis of qualitative data." *Advances in Nursing Science* 20(2):66-74.
- Taylor, S.J. and R. Bogdan. 1998. *Introduction to qualitative research methods: A guidebook and resource*. Hoboken, NJ: John Wiley & Sons Inc.
- Temin, M.J., F.E. Okonofua, F.O. Omorodion, E.P. Renne, P. Coplan, H.K. Heggenhougen, and J. Kaufman. 1999. "Perceptions of sexual behavior and knowledge about sexually transmitted diseases among adolescents in Benin City, Nigeria." *International Family Planning Perspectives* 25(4):186-190 & 195.
- Tesser, A. 1980. "Self-esteem maintenance in family dynamics." *Journal of Personality & Social Psychology* 39:77-91.
- Thomas, L., J. MacMillan, E. McColl, C. Hale, and S. Bond. 1995. "Comparison of focus group and individual interview methodology in examining patient satisfaction with nursing care." *Social Sciences in Health* 1:206-219.
- Thompson, N. 1995. *Theory and Practice in Health and Social Care*. Milton Keynes: Open University Press.
- Thorne, S. 1994. "Secondary analysis in qualitative research: Issues and implications." Pp. 263-279 in *Critical issues in qualitative research methods*, edited by J.M. Morse. Thousand Oaks, CA: Sage Publications.
- Trim, R.S., E. Leuthe, and L. Chassin. 2006. "Sibling Influence on Alcohol Use in a Young Adult, High-Risk Sample." *Journal of Studies on Alcohol* 67:391-398.
- Tucker, C.J., H.S. Barber, and J.S. Eccles. 1997. "Advice About Life Plans and Personal Problems in Late Adolescent Sibling Relationships." *Journal of Youth and Adolescence* 26(1):63-76.

- Tucker, C.J., K.A. Updegraff, S.M. McHale, and A.C. Crouter. 1999. "Older siblings as socializers of younger siblings' empathy." *Journal of Early Adolescence* 19:176-198.
- Tweedie, I. and K. Witte. 2000. "Ghana Youth Reproductive Health Survey Report." Accra, Ghana: Ghana Social Marketing Foundation.
- Updegraff, K.A. and D.A. Obeidallah. 1999. "Young Adolescents' Patterns of Involvement with Siblings and Friends." *Social Development* 8:52-69.
- Updegraff, K.A., S.M. McHale, S.D. Whiteman, S.M. Thayer, and M.Y. Delgado. 2005. "Adolescent Sibling Relationships in Mexican American Families: Exploring the Role of Familism." *Journal of Family Psychology* 19(4):512-522.
- Van Den Berg, H. 2005. "Reanalyzing Qualitative Interviews from Different Angles: The Risk of Decontextualization and Other Problems of Sharing Qualitative Data." *Forum: Qualitative Social Research* 6(1):Art.30.
- Van Der Vorst, H., R.C.M.E. Engels, W. Meeus, M. Dekovic, and J. van Leeuwe. 2007. "Similarities and bi-directional influences regarding alcohol consumption in adolescent sibling pairs." *Addictive Behaviors* 32:1814-1825.
- Vandereycken, W. and E. Van Vreckem. 1992. "Siblings of patients with an eating disorder." *International Journal of Eating Disorders* 12(3):273-280.
- Vaughn, S., J.S. Schumm, and J. Sinagub. 1996. *Focus group interviews in education and psychology*. Thousand Oaks: Sage.
- Vink, J.M., G. Willemsen, R.C.M.E. Engels, and D.I. Boomsma. 2003. "Smoking Status of Parents, Siblings and Friends: Predictors of Regular Smoking? Findings from a Longitudinal Twin-Family Study." *Twin Research* 6(3):209-217.
- Voorpostel, M. and R. Blieszner. 2008. "Intergenerational Solidarity and Support Between Adult Siblings." *Journal of Marriage and Family* 70(1):157-167.
- Voorpostel, M. and D. Schans. 2010. "Sibling relationships in Dutch and immigrant families." *Ethnic and Racial Studies* 34(12):1-21.
- Voorpostel, M. and T. Van Der Lippe. 2007. "Support Between Siblings and Between Friends: Two Worlds Apart?" *Journal of Marriage and the Family* 69(5):1271-1282.
- Wallace, S.A. 2008. "I Am My Brother's Keeper: Sibling Influences on Sexual Attitudes and Behaviors Among Urban Black Youth." *Journal of Adolescent Health* 42(2) (Supplement):43.

Weaver, S., M. Coleman, and H.G. Lawrence. 2003. "The Sibling Relationship in Young Adulthood: Sibling Functions and Relationship Perceptions as Influenced by Sibling Pair Composition." *Journal of Family Issues* 24(2):245-263.

Webber, G.R. and S.E. Byrd. 2010. "In-Depth Interviews." Sloan Network Encyclopedia Entry. February 22, 2010. Accessed March 15, 2011: <https://workfamily.sas.upenn.edu/wfrn-repo/object/ua9r9rn4xg6g6c9j>

Weinstein, M. and A. Thornton. 1989. "Mother-Child Relations and Adolescent Sexual Attitudes and Behavior." *Demography* 26(4):563-577.

Weisner, T.S. 1989. *Comparing Sibling Relationships Across Cultures*. New York: Springer-Verlag.

Wenger, M. 1989. "Work, Play, and Social Relationships among Children in a Giriama Community." Pp. 91-115 in *Children's Social Networks and Social Supports*, edited by D. Belle. New York: Wiley.

Werner-Wilson, R.J. 1998. "Gender Differences In Adolescent Sexual Attitudes: The Influence Of Individual And Family Factors." *Adolescence* 33(131):519-531.

Whiteman, S.D., S.M. McHale, and A.C. Crouter. 2007a. "Competing Processes of Sibling Influence: Observational Learning and Sibling Deidentification." *Social Development* 16(4):642-661.

Whiteman, S.D., S.M. McHale, and A.C. Crouter. 2007b. "Explaining Sibling Similarities: Perceptions of Sibling Influences." *Journal of Youth and Adolescence* 36(7):963-972.

Whiteman, S.D. and A. Christiansen. 2008. "Processes of Sibling Influence in Adolescence: Individual and Family Correlates." *Family Relations* 57(1):24-34.

Whiteman, S.D., J.M. Becerra, and S.E. Killoren. 2009. "Mechanisms of sibling socialization in normative family development." Pp. 29-43 in *Siblings as agents of socialization. New Directions in Child and Adolescent Development.*, edited by L. Kramer and K.J. Conger. San Francisco: Jossey-Bass.

Whiteman, S.D., J.M. Becerra Bernard, and S.M. McHale. 2010. "The Nature and Correlates of Sibling Influence in Two-Parent African American Families." *Journal of Marriage and the Family* 72(2):267-281.

Widmer, E.D. 1997. "Influence of older siblings on initiation of sexual intercourse." *Journal of Marriage and the Family* 59(4):928-938.

Widmer, E.D. and C.C. Weiss. 2000. "Do older siblings make a difference? The effects of older sibling support and older sibling adjustment on the adjustment of socially disadvantaged adolescents." *Journal of Research on Adolescence* 10(1):1-27.

Wilkinson, D. and G. Rutherford. 2001. "Population-based interventions for reducing sexually transmitted infections, including HIV infection." *Cochrane Database of Systematic Reviews* 2(CD001220).

Yeh, H.-C. and J.D. Lempers. 2004. "Perceived Sibling Relationships and Adolescent Development." *Journal of Youth and Adolescence* 33(2):133-147.

Yin, R.K. 1989. *Case Study Research: Design and Methods*. Beverly Hills, CA: Sage Publications.

Young, V.H. 1974. "A Black American socialization pattern." *American Ethnologist* 1(2):405-413.

Zabin, L.S. and K. Kiragu. 1998. "The Health Consequences of Adolescent Sexuality and Fertility Behaviour in Sub-Saharan Africa." *Studies in Family Planning* 29(2):210-232.

Zambrana, R.E., C. Dorrington, and D. Hayes-Bautista. 1995. "Family and Child Health: A Neglected Vision." in *Understanding Latino Families: Scholarship, Policy, and Practice.*, edited by R. Zambrana. Thousand Oaks, CA: Sage.

Zukow-Goldring, P. 1995. "Sibling caregiving." Pp. 177-208 in *Handbook of Parenting, Vol. III, Status and social conditions of parenting.*, edited by M. Bornstein. Hillsdale, NJ: Erlbaum.

Zukow, P.G. 1989. "Communicating across Disciplines: On Integrating Psychological and Ethnographic Approaches to Sibling Research." Pp. 1-8 in *In Sibling Interaction across Cultures: Theoretical and Methodological Issues.*, edited by P.G. Zukow. New York: Springer-Verlag.