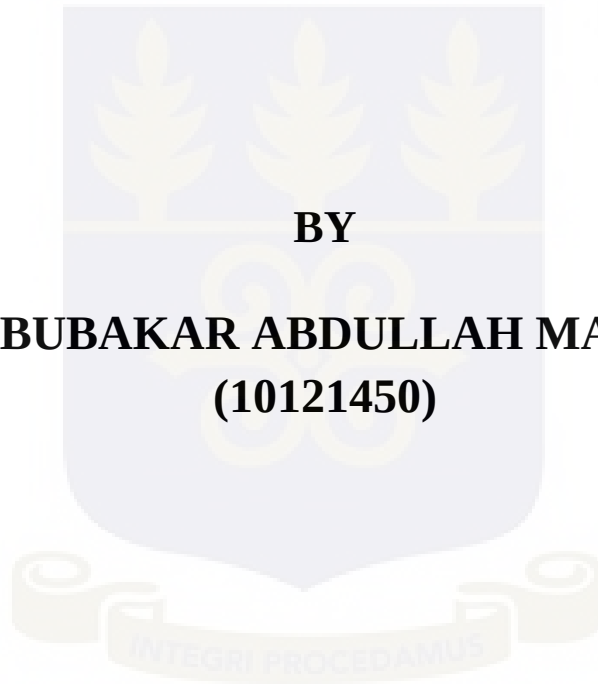


**SCHOOL OF PUBLIC HEALTH, COLLEGE OF HEALTH
SCIENCES, UNIVERSITY OF GHANA, LEGON**

**SEXUAL COMMUNICATION WITHIN FAMILIES
AND INFLUENCE ON SEXUAL BEHAVIOUR AND
CONTRACEPTION AMONG YOUNG PEOPLE IN THE
BRONG AHAFO REGION**

BY

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**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF
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FOR THE AWARD OF DOCTOR OF PHILOSOPHY
DEGREE IN PUBLIC HEALTH**

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DECLARATION

I hereby declare that this thesis is the product of my original independent research conducted in the Brong Ahafo region under the supervision of Professor Chuks J. Mba, Dr. Gloria Quansah Asare, Dr. Kwasi Odoi-Agyarko and Professor Rexford Kofi Oduro Asante. I affirm that this work has neither been published nor submitted in whole or in part to any institution for any academic award. All references made to other researchers' works have been duly acknowledged.

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ABSTRACT

Background: Young people aged 10-24 years represent a significant proportion of the Ghanaian population. Many are sexually active and are at considerable risk of negative health outcomes due to lack of adequate sexual and reproductive health knowledge. Although growing international evidence suggests that parent-child communication about sex has significant positive influence on young people's sexual behaviours, this subject has been poorly explored among Ghanaian families. Little is known about how sexual communication transpires, its determinants and the types of topics parents talk about when they engage their children in sexual discussion. Knowing the predictors of parental sexual communication, nature and the extent to which sexual communication influences young people's sexual behaviours are important for any intervention to reduce sexual risk behaviours among young people.

Objective: To explore the relationship between parental sexual communication and young people's sexual behaviours and contraception in the Brong Ahafo region of Ghana.

Methods: A cross-sectional design was used to sample 823 parent-child dyads through a two-stage systematic sampling technique with probability proportional to size. Interviewer-administered questionnaire method was used to gather quantitative data on parent-child communication and sexual behaviour. Twenty specific sexual topics categorized into biological/physical development, sexual risk prevention and experiential sex were investigated to describe the patterns, contents and frequency of communication. Congruence between parent and child reports about whether sexual discussions had occurred was also examined. The Pearson's chi-square and hierarchical multiple regression techniques were utilized to analyse sexual topics and predictors of parental communications respectively. In-

depth interviews were used collect qualitative data to flesh-out relevant issues that standard questionnaire could not cover satisfactorily.

Results: Mean (SD) age of young people was 16.9 (4.0) years and 47.3(10.1) years for parents. Majority (74.4%) of parents had ever discussed sexual issues with their children. Mothers communicate more to children than fathers. Discussions centred on sexual risk prevention topics, including sexual abstinence, HIV/AIDS, STDs, puberty, menstruation, physical development, premarital sex, and substance use. Parents discussed different sexual topics at different child ages. About 43% (50% females and 36% males) of young people reported being sexually active, of which 65% had had multiple sexual partnerships. Young men were two times more likely than young women to have engaged multiple sex partners; odds ratio (95% confidence interval) = 1.9 (1.22 – 3.06). Multiple logistic regression revealed that family religiosity, parental sexual knowledge, parent discipline and parental trustworthiness increase the odds of parents discussing sexual issues with their children. Additionally, on-time communication (sexual discussion occurring before a child initiates sex) appeared to be protective against sexual activities.

Conclusions: Parent-child sexual communication promises to be an important medium to effect protective behaviours and behavioural change among young people. Educational interventions for parents could enable parents to communicate more effectively with their children for healthy development.

DEDICATION

I dedicate this thesis to the Almighty God, the creator of the universe, for His love, grace and mercies; to my daughter Nhyira Adom Manu and unborn twins; and to my dear wife, Faustina Manu.



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TABLE OF CONTENTS

DECLARATION.....	I
ABSTRACT	II
DEDICATION	IV
ACKNOWLEDGEMENTS	V
TABLE OF CONTENTS	VII
LIST OF TABLES	XII
LIST OF FIGURES.....	XIII
LIST OF ABBREVIATIONS	XIV
DEFINITION OF TERMS	XV
APPENDICES	XVII
CHAPTER ONE.....	1
1.0 INTRODUCTION	1
1.1 BACKGROUND.....	1
1.2 STATEMENT OF THE PROBLEM.....	6
1.3 CONCEPTUAL FRAMEWORK.....	9
1.3.1 Context of conceptual framework for the study.....	10
1.3.3 Mechanisms of Influence	11
1.4 STUDY JUSTIFICATION.....	14
1.5 RESEARCH QUESTIONS	16
1.6 OBJECTIVES OF THE STUDY	17
1.6.1 General objective	17
1.6.2 Specific objectives.....	17
1.7 HYPOTHESES.....	17
CHAPTER TWO.....	18
2.0 LITERATURE REVIEW.....	18
2.1.0 PARENTAL ROLE IN SEXUAL SOCIALIZATION OF YOUNG PEOPLE	18
2.2.0 PARENT-CHILD SEXUAL COMMUNICATION	19
2.2.1 Components of parent-child sexual communication.....	19
2.2.1.1 Source characteristics influencing parent-child sexual communication.....	20
2.2.1.2 Influence of perceived parental expertise, trustworthiness and availability	21
2.2.2 Recipient characteristics and parent-child sexual communication	23
2.2.2.1 Gender of recipient and parental messages	23
2.2.2.2 Different parental attitudes towards communication with boys and girls	24
2.2.2.3 Influence of recipient age on parent-child sexual communication	25
2.2.3 Process and content of sexual communication	26
2.2.3.1 Openness in parent-child communication	26
2.2.4 Content of parent-child sexual communication	28
2.2.5 Frequency of sexual communication	29
2.2.5.1 Parent and child reports of communication frequency.....	29
2.2.5.2 Effects of frequency of communication on sexual behaviour	31
2.2.6 Timing of parent-child sexual communication	32
2.2.6.1 The timing versus content of sexual communication	33
2.2.6.2 Influence of timing of sexual communication on sexual risk behaviour	34
2.2.7 Outcome of parent-child sexual communication	35
2.2.7.1 Positive outcome of parent-child sexual communication.....	35

2.2.7.2	Adverse outcome of parent-child sexual communication	36
2.2.8	Barriers to parent-child sexual communication	37
2.2.8.1	Parental barriers in parent-child sexual communication	37
2.2.8.2	Reasons for parental reluctance in communication	40
2.2.8.3	Young people difficulties in parent-child communication	40
2.2.9	Gender dynamics in parent-child sexual communication	42
2.2.10	Traditional approach to sexual communication in Africa	43
2.3.0	SEXUAL RISK BEHAVIOUR AMONG YOUNG PEOPLE	44
2.3.1	Premarital sexual initiation	44
2.3.2	Age at heterosexual sexual initiation	45
2.3.2.1	Prevalence of early sexual initiation	46
2.3.2.2	Sex differences in sexual initiation and prevalence among young people	47
2.3.3	Consequences of early sexual initiation	50
2.3.4	Multiple sexual partnerships	51
2.3.4.1	Reasons for engaging in multiple sexual partnerships	52
2.3.5	Unintended pregnancy and childbearing	53
2.3.5.1	Prevalence of pregnancy and child bearing among young people in Ghana	54
2.3.5.2	Protective variables against adolescent pregnancy and childbearing	55
2.4.0	SEXUAL RISK BEHAVIOURS AMONG YOUNG PEOPLE IN THE BRONG AHAFO REGION	56
2.5.0	FAMILY FACTORS	57
2.5.1	Family structure and sexual behaviour of young people	57
2.5.2	Parental monitoring or supervision	59
2.5.3	Religiosity	60
2.5.3.1	Family religiosity, communication and sexual risk behaviour	60
2.5.4	Family connectedness and sexual behaviour	62
2.5.4.1	African studies on parent-child connectedness	63
2.6.0	SUMMARY	64
CHAPTER THREE		65
3.0	METHODOLOGY	65
3.1.0	THE STUDY AREA	65
3.1.1	Location of the region	65
3.1.2	Origin and creation of the region	67
3.1.3	Historical background	67
3.1.4	Political administration	68
3.1.5	Climate and vegetation	68
3.1.6	Socio-demographic characteristics	69
3.1.7	Social characteristics	70
3.1.8	Health infrastructure and healthcare services	70
3.1.9	Economic activities	70
3.2.0	STUDY DESIGN	71
3.2.1	Study Population	71
3.2.2	Sample size calculation	72
3.2.4	Inclusion criteria	74
3.2.5	Exclusion criteria	74
3.2.6	Sampling procedures	74
3.2.7	Sampling for the quantitative component	75
3.2.8	Modified random walk method for selecting households	76
3.2.9	Selection of parent-child pairs	77
3.2.10	Selection of mothers and fathers	78
3.2.11	Sampling for the qualitative component	78

3.3.0	DATA COLLECTION TECHNIQUES	79
3.4.0	STUDY INSTRUMENTS	79
3.4.1	Data and information sources	80
3.4.2	Type of data collected.....	80
3.4.2.1	Section A: Demographic and background information.....	80
3.4.2.2	Section B: Parent-child sexual communication.....	80
3.4.2.3	Section C: Young people's sexual behaviour and contraceptive practices	81
3.4.2.4	Section D: Family Socioeconomic status (parents only).....	82
3.5.0	PRE-DATA COLLECTION ACTIVITIES	82
3.5.1	Translation of questionnaire	82
3.5.2	Training of field research assistants.....	82
3.5.3	Pre-testing.....	84
3.6.0	CONFIDENTIALITY	84
3.7.0	ETHICAL CONSIDERATIONS	86
3.8.0	COMMUNITY ENTRY PROCEDURES.....	87
3.9.0	ACTUAL DATA COLLECTION	88
3.9.1	Field operational strategy	89
3.9.2	Duration of interviews	89
3.10.0	STUDY VARIABLES	89
3.10.1	Dependent variables.....	90
3.10.2	Independent variables	90
3.10.2.1	Computation of socioeconomic status index score	91
3.10.2.2	Perceived parent sexual knowledge	91
3.10.2.3	Process of communication	92
3.10.2.3.1	Openness of communication between parent and child (openness-child)	92
3.10.2.3.2	Easiness of communication between parent and child (easiness-child)	93
3.10.2.4	Timing of parent-child sexual communications	93
3.10.2.5	Frequency of parent-child sexual communication – perspective of child	94
3.10.2.6	Frequency of parent-child sexual communication (frequency parent).....	95
3.10.2.7	Family religiosity	95
3.10.2.8	Parental discipline	95
3.10.2.9	Parent trustworthiness	96
3.10.2.10	Parent availability	96
3.10.2.11	Parent permissiveness	97
3.11.0	DATA ENTRY AND MANAGEMENT	97
3.11.1	Data capture	97
3.11.2	Data validation	98
3.11.3	Data sets.....	98
3.12.0	DATA ANALYSIS	99
3.12.1	Descriptive statistics	100
3.12.2	Inferential statistics	100
3.12.2.1	Analysis of specific sexual topics	101
3.12.2.2	Multivariate analysis	102
3.12.3	Qualitative data analyses.....	104
3.13.0	QUALITY CONTROL	104
3.14.0	NOTES AND INTERPRETATION OF STATISTICAL TERMS.....	105

CHAPTER FOUR	107
4.0 RESULTS	107
4.1.0 BACKGROUND CHARACTERISTICS OF STUDY PARTICIPANTS.....	107
4.1.1 Socio-demographic characteristics of study participants	107
4.1.2 Distribution of the study participants.....	108
4.1.3 Socio-demographic characteristics of parents	108
4.1.4 Socio-demographic and other characteristics of young people.....	110
4.2.0 PARENT-CHILD SEXUAL COMMUNICATION	112
4.2.1 General communication.....	112
4.2.2 Parent-child sexual communication.....	113
4.2.3 Global measure of sexual communication	113
4.2.3.1 Frequency of global sexual communication	114
4.2.4 Communication on specific sexual topics.....	115
4.2.4.1 Extent and patterns of parent-child communication.....	115
4.2.4.2 Rarely discussed sexual topics	119
4.2.5 Gender differences in discussion of sexual topics between parent and child	120
4.2.5.1 Gender differences in content of sexual communication	125
4.2.6 Rural-urban differences in reports of communication by parent and child.....	128
4.2.7 Initiation of parent-child sexual communication	130
4.2.7.1 Parental communication strategies	130
4.2.7.2 Reasons parents initiate sexual communication	132
4.2.8 Parent-child differences in report of communication difficulty by sex	133
4.2.9 Timing of sexual communication	136
4.2.9.1 Perceived appropriate age for sexual discussion	136
4.2.9.2 Timing of communication vs. timing of sexual intercourse	137
4.2.9.2 Age of discussing specific sexual topics	138
4.3.0 DETERMINANTS OF PARENTAL SEXUAL COMMUNICATION	141
4.3.1 Relationship between frequency of communication and SES	141
4.3.2 Association between frequency of communication and family structure	143
4.3.3 Association between frequency of communication and family religiosity	144
4.3.4 Relationship between frequency of communication and parents' sexual knowledge	145
4.3.5 Association between frequency of communication and parental discipline	145
4.3.6 Association between family connectedness and frequency of sexual communication	146
4.3.7 Determinants of parental sexual communication.....	147
4.4.0 SEXUAL RISK BEHAVIOURS AND CONTRACEPTIVE USE AMONG YOUNG PEOPLE.....	150
4.4.1 Profile of sexual activities among young people	150
4.4.2 Higher risk sexual activities.....	152
4.4.3 Pregnancy and outcome	155
4.4.3.1 Differences in report of pregnancy by gender, and place of residence	156
4.4.4 Contraceptive use	157
4.4.4.1 Awareness of family planning.....	160
4.5.0 INFLUENCE OF SEXUAL COMMUNICATION ON YOUNG PEOPLE'S SEXUAL RISK BEHAVIOURS	161
4.5.1 Correlation matrix among selected variables.....	161
4.5.2 Relationship between sexual communication and sexual behaviour	163
4.5.3 Association between age at sexual intercourse and communication.....	164
4.5.4 Relationship between lifetime number of sexual partners and sexual communication.....	166
4.5.5 Association between communication and ever had sexual intercourse	169
4.5.6 Association between communication and condom use at first sexual intercourse.....	172
4.5.7 Association between communication and report of pregnancy	175
4.5.8 Relationship between communication and contraceptive use in last three months	177

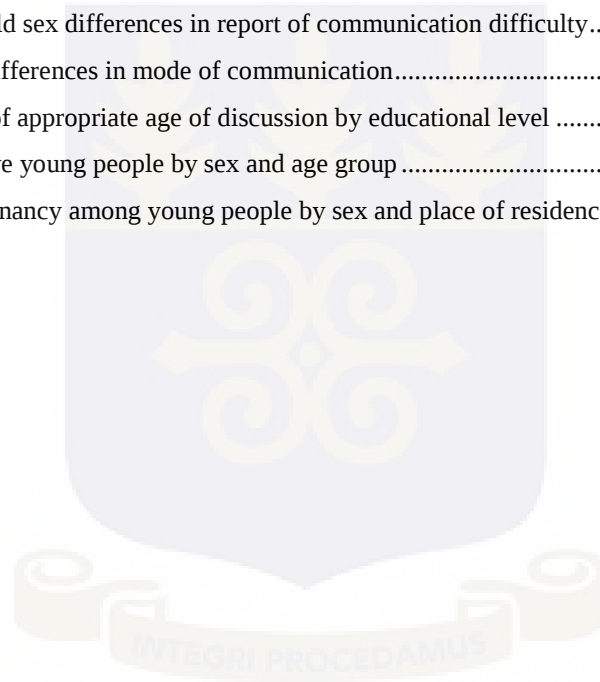
4.6.0	SUMMARY OF FINDINGS	179
4.6.1	Parent-child sexual communication.....	179
4.6.2	Determinants of parental sexual communication.....	180
4.6.3	Young people sexual behaviours and contraceptive use.....	180
4.6.4	Sexual communication and sexual behaviour.....	181
CHAPTER FIVE.....		183
5.0	DISCUSSION	183
5.1.0	BACKGROUND CHARACTERISTICS OF STUDY PARTICIPANTS.....	183
5.2.0	PATTERNS OF PARENT-CHILD SEXUAL COMMUNICATION	185
5.2.1	Communication frequency.....	185
5.2.2	Initiation of parent-child sexual communication	188
5.2.2.1	Cues and motivations for sexual discussions	189
5.2.3	Parent-child communication on specific sexual topics	191
5.2.4	Congruence in reports of parent-child sexual communication	193
5.2.5	The timing of sexual communication	195
5.2.5.1	Appropriate age to initiate sexual discussion	196
5.2.6	Gender differences in sexual communication	198
5.2.6.1	Parental differences.....	198
5.2.6.2	Child differences	200
5.2.7	Rural-urban differences in reports of communication by parent and child.....	201
5.3.0	DETERMINANTS OF PARENTAL SEXUAL COMMUNICATION	201
5.3.1	Relationship between socioeconomic status and parental sexual communication.....	201
5.3.2	Association between family structure and parental sexual communication	203
5.3.3	Association between parental sexual communication and family religiosity	203
5.3.4	Association between parental sexual communication and parents' perceived sexual knowledge	205
5.3.5	Association between parental sexual communication and parental discipline.....	206
5.4.0	SEXUAL BEHAVIOUR AND CONTRACEPTIVE USE AMONG YOUNG PEOPLE	206
5.4.1	Profile of sexual activities among young people	207
5.4.2	Higher risk sexual activities.....	209
5.4.3	Contraceptive use by young people.....	212
5.4.4	Pregnancy and outcome	214
5.5.0	INFLUENCE OF SEXUAL COMMUNICATION ON YOUNG PEOPLE'S SEXUAL BEHAVIOUR	215
5.5.1	Association between age at sexual intercourse and sexual communication	216
5.5.2	Relationship between sexual communication and lifetime sexual partners	218
5.5.3	Relationship between sexual communication and ever had sexual intercourse	219
5.5.4	Relationship between sexual communication and condom use at first sex.....	220
5.5.5	Relationship between sexual communication and contraceptive use in past three months	222
5.5.6	Relationship between sexual communication and report of pregnancy	224
5.6.0	STRENGTHS OF THE STUDY.....	226
5.7.0	LIMITATIONS OF THE STUDY.....	227
CHAPTER SIX		228
6.0	CONCLUSIONS AND RECOMMENDATIONS.....	228
6.1.0	CONCLUSIONS.....	228
6.2.0	RECOMMENDATIONS	230
6.2.1	Ghana Health Service and Civil Society Organizations	230
6.2.2	Ghana Education Service.....	231
6.2.3	Future research direction	232
REFERENCES.....		233
APPENDICES.....		255

LIST OF TABLES

Table 2.1 Prevalence of Sexual Activity among Ghanaian Young People.....	49
Table 4.1 Socio-demographic characteristic of parents.....	109
Table 4.2 Socio-demographic characteristics of young people	111
Table 4.3 Distribution of parents' and young peoples' reports of general communication	112
Table 4.4 Cross-tabulation of parent and child reports of global sexual communication by sex	113
Table 4.5 Parents and young people reports of discussion of specific sexual topics	116
Table 4.6 Parents and young people reports of discussion of specific sexual topics	117
Table 4.7 Possible sexual topics parents believe are important to discuss: Multiple response analysis	118
Table 4.8 Distribution of parent-child pairs discussing each of the specific sexual topics.....	122
Table 4.9 Chi-square analysis of parents' report of discussion of specific sexual topics by sex	123
Table 4.10 Chi-square analysis of young people report of discussion of specific sexual topics by sex	124
Table 4.11 Mean number of sexual topics discussed by respondents.....	125
Table 4.12 Percent differences in young people's report of discussion with parents by place of residence	129
Table 4.13 Appropriate age for sexual communication.....	136
Table 4.14 Cross-tabulation of parents' report of timing of communication	138
Table 4.15 Mean age of discussing specific sexual topics.....	140
Table 4.16 Relationship between frequency of parent communication and SES	142
Table 4.17 Gabriel post hoc multiple comparisons for SES	142
Table 4.18 Relationship between frequency of parent communication and family structure	143
Table 4.19 Gabriel's post hoc multiple comparisons for family structure.....	144
Table 4.20 Hierarchical multiple logistic regression predicting sexual communication stratified by sex of parent	149
Table 4.21 Distribution of sexual activities among sexually active young people by sex.....	153
Table 4.22 Distribution of sexually active young people involved in sexual behaviours by place of residence	154
Table 4.23 Differences in report of pregnancy	155
Table 4.24 Distribution of contraceptive use among sexually active young people by sex.....	159
Table 4.25 Heard about family planning	160
Table 4.26 Source of information on family planning.....	160
Table 4.27 Correlation matrix among selected variables.....	162
Table 4.28 Hierarchical multiple linear regression predicting age at sexual initiation stratified by sex of child.....	166
Table 4.29 Hierarchical multiple linear regression predicting lifetime sexual partners stratified by sex of child	169
Table 4.30 Hierarchical multiple logistic regression of ever had sexual intercourse stratified by sex of child	171
Table 4.31 Hierarchical multiple logistic regression of condom use at first sex stratified by sex of child.....	173
Table 4.32 Hierarchical multiple logistic regression of report of pregnancy stratified by sex of child.....	176
Table 4.33 Hierarchical multiple logistic regression of contraceptive use stratified by sex of child	178

LIST OF FIGURES

Figure 1.1 Conceptual framework.....	9
Figure 3.1 Map of Ghana showing the Brong Ahafo region	66
Figure 3.2 Map of Brong Ahafo showing administrative districts	69
Figure 3.3: Map of Brong Ahafo region showing selected EAs localities.....	76
Figure 3.4: Photographs of investigator and research assistants during training	84
Figure 3.5: Confidential interviews with parents and young people	85
Figure 3.6: Meeting with community leaders.....	88
Figure 4.1 Distribution of frequency of general sexual communication	114
Figure 4.2 Parent-child reports of parental warning and threats during sexual talks.....	130
Figure 4.3 Reasons for initiation of parent-child sexual communication	132
Figure 4.4 Parent and child sex differences in report of communication difficulty.....	134
Figure 4.5 Parent-child differences in mode of communication.....	135
Figure 4.6 Parent report of appropriate age of discussion by educational level	137
Figure 4.7 Sexually active young people by sex and age group	151
Figure 4.8 Report of pregnancy among young people by sex and place of residence	157



LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ANOVA	Analysis of Variance
AOR	Adjusted Odds Ratio
BMJ	British Medical Journal
GDHS	Ghana Demographic and Health Survey
EAs	Enumeration Areas
FGD	Focus Group Discussion
GAC	Ghana AIDS Commission
GHS	Ghana Health Service
GSS	Ghana Statistical Service
HIV	Human Immunodeficiency Virus
MDGs	Millennium Development Goals
MICS	Multiple Cluster Indicator Survey
MoH	Ministry of Health
NCA	National Communications Authority
NMIMR	Noguchi Memorial Institute for Medical Research
PCSC	Parent-Child Sexual Communication
SES	Socioeconomic status
SPSS	Statistical Package for Social Sciences
SRH	Sexual and Reproductive Health
STDs	Sexually Transmitted Diseases
STIs	Sexually Transmitted Infections
USA	United States of America
WHO	World Health Organization
WHO/AFRO	World Health Organization Regional Office for Africa

DEFINITION OF TERMS

For the purposes of this research, the following operational definitions were used.

Age at sexual initiation: the age at which a young person first engaged in sexual intercourse with the opposite sex.

Child: refers to a young person aged 10 years to 24 years.

Content of sexual communication: is the number or variety of sexual topics discussed (e.g., condom use, pregnancy, abortion), and the extent to which these topics were discussed.

Father: a male biological parent, stepparent, adoptive parent, foster parent or any other adult serving as parent to the child.

General communication about sex: measures whether parents had ever engaged in sexual communication with their children.

Mother: a female biological parent, stepparent, adoptive parent, foster parent or any other adult serving as parent to the child.

Occurrence of communication: communication is deemed to have occurred if a young person reported having had discussion with either parent on at least one of the 20 specific sexual topics.

Off-time sexual communication: sexual discussion occurring after a young person had initiated sexual intercourse.

On-time sexual communication: sexual discussion occurring before a young person initiates sexual intercourse.

Parent: refers to a biological parent, stepparent, adoptive parent, foster parent, or any other adult who functions as a mother or father to a young person.

Parent-figure: An adult who is not the biological parent, but whom young people describe as being like a mother or father to them, and with whom they stay with.

Parental monitoring: refers to parents' knowledge of their child's whereabouts, activities, and friends.

Religiosity: a composite score of religious affiliation, church attendance, self reports of importance of religion, frequency of prayer and involvement of religious group activities.

Sexual behaviour: involvement in any or a combination of the following activities: (1) ever had sexual intercourse (2) age at sexual initiation (3) having more than one lifetime sexual partner (4) failure to use condom at first sexual intercourse (5) contraceptive use in past three months, and (6) ever been pregnancy/made someone pregnant.

Sexual communication: discussion between parents and young people on sexual issues in which parents educate and transmit sexuality information to their children.

Timing of sexual discussion: refers to the age of child when parents first discussed sexual abstinence with the child.

APPENDICES

APPENDIX 1: MDGs ADOLESCENT HEALTH TARGETS AND OMEGA SQUARED	255
APPENDIX 2: YOUNG PEOPLE QUESTIONNAIRE	256
APPENDIX 3: PARENT QUESTIONNAIRE.....	268
APPENDIX 4: IN-DEPTH INTERVIEW GUIDE FOR YOUNG PEOPLE	277
APPENDIX 5: IN-DEPTH INTERVIEW GUIDE FOR PARENTS	278
APPENDIX 6: ETHICAL CLEARANCE	279
APPENDIX 7: INFORMED CONSENT FORM.....	280
APPENDIX 8: NORMAL Q-Q PLOT OF AGE, YOUNG PEOPLE.....	282
APPENDIX 9: NORMAL Q-Q PLOT OF AGE AT SEXUAL INTERCOURSE	283
APPENDIX 10: RESIDUAL SCATTER PLOTS.....	284



CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Young people¹ make up about 28% of the world's population; the largest generation in history that is now making the transition from childhood to adulthood (Population Council, 2006). It is estimated that about 86% of this group – nearly 1.5 billion individuals live in the developing world. The sheer number of this group and the potential health and social problems associated with them present huge concerns for most governments, particularly those of developing countries. For instance, nearly two-thirds of all premature deaths and one-third of the total disease burden in adults are associated with conditions or risky behaviours that began in adolescence. These risky behaviours include unprotected sex, tobacco use, a lack of physical activity and exposure to violence (WHO, 2008). Yet in most societies, sexual and reproductive health of young people are generally not well addressed (WHO, 2003).

The transition of young people from childhood to adulthood comes along with vulnerabilities to biological and socio-cultural problems. The declining age at menarche (Pachauri and Santhya, 2002; Downing and Bellis, 2009; Aryeetey et al., 2011); coupled with the decreasing influence of traditional culture on behaviour and the trend towards later marriage due to long years in school provide a wide window through which most young people explore sexual activities.

¹ The World Health Organization defines young people as those aged 10-24 years. This is made up of two sub-groups: “adolescents” 10-19 years and “young adults” 20-24 years.

The transition from childhood to adulthood lasts about 15 years, but during this period, many young people, especially females acquire significant preventable health problems, most of which could persist throughout their adult life. These problems are predominantly related to risky sexual behaviours such as unprotected sex, unwanted pregnancies, early marriage, unsafe abortion and its complications and sexually transmitted infection, including HIV/AIDS.

Research has shown that the majority of young people become sexually active during mid-adolescence (WHO, 2003; Singh et al., 2005); and potentially face the dual risks of sexually transmitted diseases, including HIV, and in the case of girls, unwanted pregnancy (Lloyd, 2007). Sexual activity among young people is often unplanned and unstable; and most of them initiate sexual intercourse due to peer pressure, coercion, curiosity, and poverty (Gueye et al., 2001; Afenyadu and Goparaju, 2003).

In the domain of sexual socialization, studies from the developed world (Jaccard et al., 2002a; DiIorio et al., 2003; Turnbull et al., 2008; Beckett et al., 2010) and sub-Saharan Africa (Speizer et al., 2001; Namisi et al., 2009) have established that families, particularly parents, are important actors who influence the attitudes, decision-making and involvement of young people in sexual behaviour. Minimizing the incidence of risky sexual behaviours, therefore, to a greater extent depends on how the child is sexually socialized through parent-child communication.

The family (parents) exerts considerable influence on values, attitudes and aspirations of young people from birth; and parents especially, are the primary source of norms and role

model. Behaviours that are learnt within the family environment are likely to provide the foundation for subsequent attitudes and behaviours (Bakken and Winter, 2002). For example, young people who learn about values of their parents and elders regarding premarital sexual activity and contraceptive use are less likely to engage in sexual risk-taking than their peers who are not exposed to the values of their elders (Speizer et al., 2001).

Parents serve as barriers against peer pressure and environmental factors that influence young people's sexual behaviours (Whitaker and Miller, 2000; Hutchinson et al., 2003). Additionally, parental-child communication enables parents to express their own values, beliefs and expectations to their children (Eisenberg et al., 2006). Therefore, parental role in providing sexual information to young people for positive or healthy development, and to empower them to manage the many challenges associated with youthfulness cannot be underestimated.

There is evidence that young people prefer to receive sexual information from their parents (Clawson and Reese-Weber, 2003), yet only a few obtain such information from them (Somers and Paulson, 2000; Babalola et al., 2005). In spite of the crucial role parents play as the principal sexual socialization agents for young people (Turnbull et al., 2008; Beckett et al., 2010), studies elsewhere have documented that parents find it difficult to engage young people in sexual discussions. The difficulties parents encounter during sexual discussions include being uncomfortable and feeling embarrassed (Guilamo-Ramos et al., 2008; Kirby, 2008; Turnbull et al., 2008). Moreover, parents claim they lack the requisite knowledge to talk to their children and are unsure about *how* and *at what age* the various sexual issues should be addressed (Speizer et al., 2001; Eastman et al., 2005; Schuster et al., 2008). These

difficulties compound parental reluctance to communicate with their children on sexual issues. The extent of these challenges in parental communication is not known in Ghana.

Many scholars (including Hutchinson et al., 2003; Guilamo-Ramos et al., 2006b; Atienzo et al., 2009; Biddlecom et al., 2009) have established that parent-child sexual communication² (PCSC) influences young people's sexual behaviours and attitudes. Several studies have consistently reported that PCSC reduces sexual risk-taking among young people (Wilson and Donenberg, 2004; Aspy et al., 2006; Wang et al., 2007; Zhang et al., 2007; Guilamo-Ramos and Bouris, 2008; Villarruel et al., 2008; Ballard and Gross, 2009; Kapungu et al., 2010). For instance, young people who receive appropriate sexual information from their parents potentially delay the onset of sexual activity (Kapungu et al., 2010), and if they are already sexually active, they avoid multiple sexual partners and use condom regularly and consistently (Whitaker and Miller, 2000; Odimegwu et al., 2002; Hutchinson et al., 2003; Karim et al., 2003; Aspy et al., 2006; Ballard and Gross, 2009).

PCSC has been extensively studied in the developed countries (Phetla et al., 2008), with most of the data originating from the United States of America [USA] and a few from other parts of developed nations. This contrasts sharply with data from the sub-Saharan Africa [SSA] region (Wamoyi et al., 2010). This confirms earlier evidence that PCSC in this region is rare (Awusabo-Asare et al., 2006). In fact, in SSA, only a few studies have considered PCSC (Blum and Mmari, 2006), and such studies were conducted in: Cote d'Ivoire (Babalola et al., 2005); Ghana (Adu-Mireku, 2003; Kumi-Kyereme et al., 2007b) Kenya (Poulsen et al., 2010);

² Parent-child sexual communication is a complex subject, but for the purposes of this research, this construct is operationalized to involve the assessment of four key aspects – process, content, frequency and timing of communication.

Nigeria (Odimegwu et al., 2002; Amoran et al., 2005; Izugbara, 2008) ; South Africa (Phetla et al., 2008; Namisi et al., 2009); Tanzania (Wamoyi et al., 2010).

Available evidence suggests that many young people continue to rely on their ill-informed and ignorant peers (Izugbara, 2008), and other sources such as teachers and the media as front-line contacts for sexual and reproductive health information and education (Monisola and Oludare, 2009), with their attendant risks. Due to inadequate and inaccurate sex education before or during their adolescent years, (Izugbara, 2008), most young people are unable to know much about their own sexual health as well as appropriate preventive practices against risky sexual behaviours. Timely and effective sexual communication will equip young people with skills to manage their sexual and reproductive health decisions to grow up healthy (Somers and Paulson, 2000; Clawson and Reese-Weber, 2003). An investigation into PCSC will reveal how and what sexual information, values and attitudes parents transmit to young people as they transition to adulthood.

There was therefore the need to conduct this study to explore parent-child sexual communication and its influence on sexual behaviour among young people in the middle-belt of Ghana. The study specifically examined the process, content, frequency and timing of sexual communication from the perspectives of both young people and their parents.

1.2 Statement of the problem

Almost one-third (30.4%) of the Ghanaian population is made up of young people aged 10 years to 24 years (GSS, 2002). Available data suggest that majority of young people in Ghana are sexually active (Agyei et al., 2000; Karim et al., 2003; GSS et al., 2004; Awusabo-Asare et al., 2006); and the prevalence of sexual activity increases dramatically after age 14, especially for females (GSS et al., 2004; Hessburg et al., 2007).

For instance, the 2006 Multiple Cluster Indicator Survey (MICS) found that among the 15-19 year olds, 36% of girls and 22% of boys had ever had sexual intercourse; but among young adults 20-24, almost 90% of young girls and about 70% of young boys were sexually experienced (GSS et al., 2008).

In spite of the high drive for sexual activity by young people, many of them lack adequate and accurate knowledge about SRH issues (Hessburg et al., 2007; GSS et al., 2008; Izugbara, 2008). For example, among 15-19 year-olds, only 28% of females and 21% of males has adequate knowledge of SRH³ (GSS et al., 2004; Hessburg et al., 2007). Also, among the youth 15-24 years, just a quarter of females and 3 in 10 males demonstrated comprehensive knowledge about HIV/AIDS⁴ (GSS et al., 2008). This predisposes young people to higher sexual risks.

In addition to this, contraceptive use among young people is low in spite of high awareness rates (Afenyadu and Goparaju, 2003), resulting in high levels of unintended pregnancy and

³ Aware of a woman's fertile period, reject several misconceptions about pregnancy and knew at least one modern method of contraception (2004 National Survey of Adolescents)

⁴ Able to identify 2 prevention methods and 3 misconceptions about HIV/AIDS (2006 Multiple Indicator Cluster Survey).

acquisition of STIs including HIV (GSS et al., 2004). Besides, research has shown that about a third (30%) of Ghanaian adolescent girls are coerced at first sexual intercourse (Moore et al., 2007).

Although international evidence suggests that parent-child sexual communication tremendously reduces young people's sexual risk-taking behaviours (Jaccard et al., 2002a; Miller, 2002; Aspy et al., 2006; Guilamo-Ramos et al., 2006b; Iyaniwura, 2006; Wang et al., 2007; Zhang et al., 2007; Guilamo-Ramos et al., 2008; Villarruel et al., 2008; Atienzo et al., 2009; Ballard and Gross, 2009), the subject has not been well explored in Ghana. The search of the literature revealed that very few studies had been conducted in Ghana on PCSC, including only four (4) published ones (Bastien et al., 2011). These studies were all selective in scope, coverage and assessment. For example, Adu-Mireku (2003), only examined family communication about HIV/AIDS, while Maya (2009) studied parent-child discussion about contraception. Similarly, Kumi-Kyeremeh and colleagues (2007) looked at PCSC from a limited perspective by assessing whether such discussions have occurred among adolescents and their parents.

Most of these Ghanaian studies on PCSC sought information from the perspective of young people only; views of their parent were not considered. The views of both parents and children are critical for a balanced and comprehensive assessment of PCSC. Besides, most previous studies about Ghanaian young people have predominantly focused on individual level factors such as knowledge, attitudes and beliefs; with little attention to how these variables are derived.

Presently, very little is known in Ghana about studies that targeted both parents and their children to holistically examine sexual communication and young people sexual behaviours. Specifically, there is dearth of data on the process, content, frequency and timing of parental sexual communication and their influence on young people's sexual risk-taking behaviours.

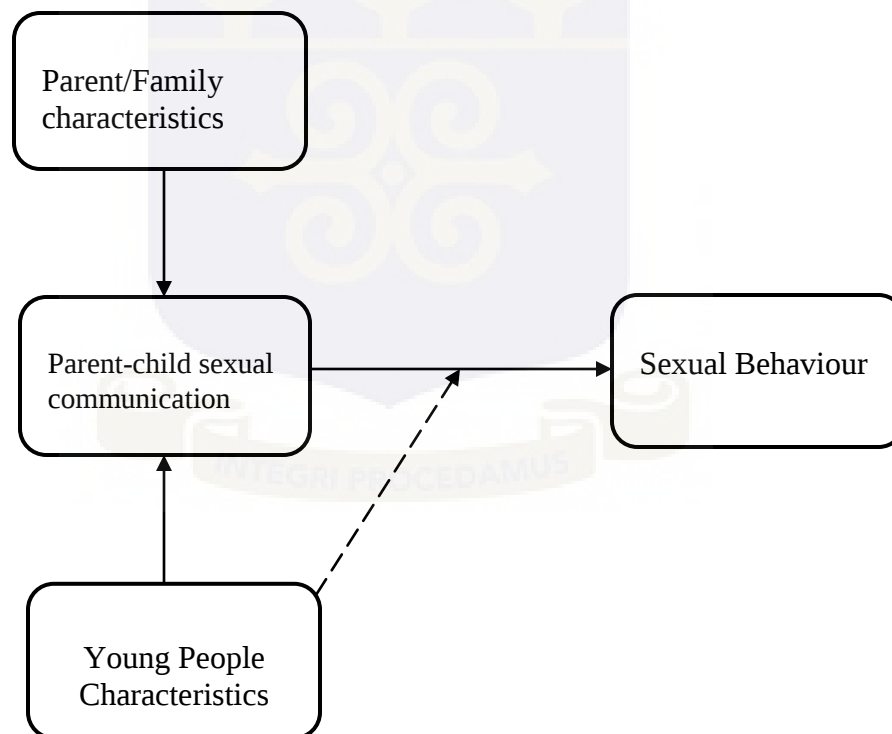
Against this background, this study explored the relationship between parent-child sexual communication and young people's sexual behaviours in the Brong Ahafo region, Ghana.



1.3 Conceptual framework

This section discusses the mechanisms through which parent-child sexual communication occurs and how it impacts young people's sexual behaviour and contraceptive use. Figure 1.1 describes how parent characteristics and family context factors operate as predictors of parent-child sexual communication, for the message to influence sexual risk-taking behaviours of young people.

Figure 1.1 Conceptual framework for parent-child sexual communication and sexual behaviour



Source: Eisenberg et al. (2006), with modification

1.3.1 Context of conceptual framework for the study

Parent-child sexual communication has been extensively studied, especially in the developed countries (Namisi et al., 2009) in the field of social sciences, yet it has tended to lack an organized framework for understanding how parents influence their children in a communication context (Guilamo-Ramos et al., 2006). In spite of this limitation, the present study uses the framework exhibited in Figure 1.1 (Eisenberg et al., 2006) to conceptualize how parents transmit sexual messages to their children to influence their sexual behaviours.

Generally, communication between two people can move in a bidirectional fashion where the message emanates from any of the parties (Jaccard et al., 2002a); or in a unidirectional manner – from one party to the other. The present study considers a communication situation in which parents proactively and consciously attempt to communicate information about sex and contraception to their children. The purpose of this type of communication is to influence young people's knowledge, values, attitudes, intentions and behaviour (Jaccard et al., 2002a).

1.3.2 Description of framework components

The framework shown in Figure 1.1 conceptualizes a parent-child sexual communication situation that involves four principal components, which interact in variety of ways together to result in sexual risk behaviour.

The components are:

1. **Parent/family factors** (Family: *family structure, religiosity, family socioeconomic status, family connectedness, and family openness*). Parent characteristics (*parent's age, sex, educational level, religion, place of residence, parent's sexual knowledge, trustworthiness, and availability*);
2. **Young people characteristics** (*age, sex, educational level, religiosity and place of residence*);
3. **Parent-child sexual communication** (*Process[easiness and openness]; content, frequency and timing of communication*)
4. **Young people sexual behaviour.**

1.3.3 Mechanisms of Influence

Parent-child communication about sex and contraception involves complex dynamics (Jaccard et al., 2002a). For simplicity, the framework is restricted to a dyadic interaction between one parent and one child, where the parent (*source of message*) delivers a sexual message to the child (*recipient*) with the hope of influencing the child's sexual determinants such as knowledge, values, attitudes, intentions, and ultimately behaviour (*Ibid*).

Parent-child sexual communication may occur in the following ways. First of all, a parent may, of her/his own accord, initiate sexual communication with his/her child depending on the parent's own characteristics like age and sex. This might happen due to her/his own beliefs, values and orientation towards sexual socialization. Such an individual weighs the advantages of talking against the disadvantages of not talking to the child about sex (Eisenberg et al., 2006). Considering that parents are universally opposed to premarital sex (Jaccard and Dittus, 2000), then most parents will initiate sexual discussions with their children.

Secondly, parental sexual communication may arise based on suspicion of young person's involvement in sexual activity; or in response to risky sexual behavioural event(s) involving their children's peers in their neighbourhood. Such events include evidence of sexual initiation, pregnancy and abortion. Parents could thus capitalize on such situations and impart sexual health information to young people to affect their sexual knowledge, values, intentions and hence sexual risk-taking behaviours.

The third mechanism of influence of parent-child sexual communication on sexual behaviours occurs when the child feels the need for sexual information and decides to seek out parents for help and advice. This will offer parents the opportunity to talk to their children about important issues including sexuality (Guilamo-Ramos et al., 2006b).

Lastly, young people's sexual behaviours may emanate from the child's own characteristics (Pylypchuk and Marston, 2008; Huang et al., 2010). The characteristics of the child can have a direct and independent impact on their sexual behaviour and attitudes. This relationship may particularly be reinforced by peer pressure and sexual information young people receive from other sources such as friends, teachers other family members etc. These factors influence young peoples' sexual orientation and thus affect their general sexual risk behaviour.

1.3.4 Communication effectiveness variables

The effectiveness of communication (impact) in the above scenarios on the young person's sexual behaviours may vary as a direct function of parent characteristics and family factors (Figure 1.1). The process of communication (style, comfort, openness [friendly or hostile]) moderates the communication outcome through these variables. For example, the communication style a parent employs determines how the child internalises the message (Wyckoff et al., 2008). Some parents use fear-arousal style to communicate sexual information to their children by scaring young people about sex or connecting immorality with sexual issues. This type of communication rather misinforms young people and as a result they may not be able to develop assertive and sexual risk negotiating skill (Izugbara, 2008). Also, open and receptive communication styles by parents have been found to be associated with less sexual risk-taking among young people (Kotchick et al., 1999).

In addition, research has demonstrated that for risky sexual behaviours, mothers are dominant than fathers with respect to being a source of information and also affecting the risk behaviour of their children (DiIorio et al., 1999; Jaccard et al., 2002a; Miller et al., 2009). Similarly, it has been consistently reported that young girls talk more to their mothers than to their fathers on sexual issues (Miller et al., 1998b; Jaccard et al., 2002a; Lefkowitz et al., 2002; Turnbull et al., 2008). Thus depending on young person's characteristics, mothers are more likely to be influential on their children's sexual behaviour and contraceptive use than fathers.

Furthermore, Guilamo-Ramos and associates posit that individual parent's attributes like sex, perceived sexual knowledge (expertise), trustworthiness and availability, for example, are factors that affect message effectiveness (Guilamo-Ramos et al., 2006b). For instance, if

parents think that they have the requisite sexual knowledge, believe young people trust what they say and are always available, they are likely to communicate with their children about sexual issues. Similarly, if young people perceive parents to be highly knowledgeable to offer good advice, are trustworthy, and are available or accessible, they (young people) would be motivated to accept parent's sexual messages (Guilamo-Ramos et al., 2006b).

It is pertinent to note that due to cultural construction of sexuality, some parents might absolutely avoid sexual discussion with their children due to fear of encouraging early sexual activity, protecting children from early sexual knowledge or children being too young (Mbugua, 2007; Izugbara, 2008; Ballard and Gross, 2009), embarrassment, discomfort and anxiety (Rosenthal et al., 1998; Poulsen et al., 2010). In such situations, the child may or may not engage in sexual risk-taking behaviours depending on her/his personal characteristics (Figure 1.1), which may be influenced by peer pressure or sexual information received from other sources.

1.4 Study justification

The achievement of five of the Millennium Development Goals (MDGs) [see Appendix 1] are closely linked to young people's sexual and reproductive health, especially for females. Examining the influence of parent-child sexual communication on young people's sexual behaviour and attitudes will reveal the driving forces for risky sexual behaviours. Findings will therefore inform policy, programmes and interventions dealing with young people's sexual risk-taking behaviours and attitudes. This will ultimately contribute to Ghana's efforts at achieving the adolescent-health-related MDGs.

In addition, five of the seven targets of the 2000 Adolescent Reproductive Health Policy document [see Appendix 1] border on good behaviour formation and behaviour change. Thus identifying the risk and protective factors within the family context will discourage young people from sexual risk behaviours and promote healthy adolescence. This will go a long way to support the achievement of the ARH policy targets.

Furthermore, the study will provide primary information to deal with HIV/AIDS and adolescent pregnancy issues in the Brong Ahafo region. Trends in median HIV sero-prevalence among various age groups in Ghana declined between 2005 and 2007, but over the same period, the median prevalence among adolescents 15-19 years and youth aged 15-24 years increased steadily (Ghana Health Service, 2008a). It has been suggested that the sexual behaviour of young people will determine the future direction of HIV infections in Ghana (Karim et al., 2003). Specifically, the Brong Ahafo region has consistently ranked fourth in high HIV prevalence nationally since 2004, yet the youth aged 15-24 ranks third in prevalence. For instance, HIV prevalence among adolescents 15-19 and young adults 20-24 in the region were 2.6% and 3.1% respectively. These far outstrip the national average of 1.6% and 2.6% among the same age group respectively for the same period (Republic of Ghana and Ghana Health Service, 2008). This calls for targeting the youth as priority groups for preventive interventions, because a population afflicted with high HIV infections among its youth risks economic growth and development prospects.

In addition to high HIV prevalence, adolescent pregnancy is also high in the region – ranks second among all the ten regions in Ghana (Ghana Health Service, 2008b; NACP, 2008). For example, the reported adolescent pregnancy rate in the Brong Ahafo region for 2007 was

14%, compared to the national average of 12.4% (Ghana Health Service, 2008b). This study will provide information on the extent of parental involvement in sexual communication in the region. The information could be used as inputs for primary prevention efforts targeting character formation and modification of young people at the family level, since HIV and adolescent pregnancy prevention are largely behavioural.

Finally, findings from the study will serve as baseline information for future survey on parent-child sexual communication and influences on young people sexual reproductive health. It will also provide data to inform adolescent health programming in the region, especially on how to engage parents as part of a comprehensive strategy to prevent adolescent health risk behaviours and promote healthy development.

1.5 Research questions

The following questions guided the study:

- a) To what extent do parents communicate with their children about sexual and reproductive health issues?
- b) Do parents and young people differ by gender and place of residence in reporting that sexual communication had occurred?
- c) Do parental/family factors influence the frequency of parental sexual communication with young people?
- d) Are young people's sexual behaviours associated with the process, content, frequency and timing of sexual communication between parents and young people?

1.6 Objectives of the study

1.6.1 General objective

The general objective was to explore parent-child sexual communication and the relationship between parental sexual communication and young people's sexual behaviours in the Brong Ahafo region of Ghana

1.6.2 Specific objectives

The specific objectives were to:

1. Determine the proportion of parents who engage in sexual communication with their young people;
2. Identify the sexual topics parents are likely to discuss with their children in sexual communication engagements;
3. Explore the differences in content of communication based on parents and young people's reports by sex Assess the relationship between parental/family factors and the frequency of parental sexual communication;
4. Evaluate the relationship between the process, content, timing and frequency of parent-child sexual communication and young people's sexual behaviours.

1.7 Hypotheses

The following hypotheses stated in the alternate form were tested:

1. Mothers discuss more topics about sex than fathers
2. Mothers discuss more sexual topics with their daughters than with their sons
3. Fathers discuss more sexual topics with their sons than with their daughter

CHAPTER TWO

2.0 LITERATURE REVIEW

This chapter gives an account of relevant literature in relation to the objective of the study. It covers the following themes:

- Parental role in sexual socialization of young people;
- Parent-child sexual communication – components, process, content, frequency and timing of communication, outcome and barriers of communication;
- Sexual risk behaviours – early initiation of sexual intercourse, pregnancy and multiple sexual partnerships; and
- Family factors.

2.1.0 Parental role in sexual socialization of young people

Parents play a critical role in the growth, development and socialization of their children. Studies have been unequivocal in terms of parents being the most dominant educators of children including sex education (Babalola et al., 2005; Eastman et al., 2005; Turnbull et al., 2008). Parental involvement in the life of their young children is a significant predictor for positive healthy development (Longmore et al., 2001; Pearson et al., 2006).

One of the important aspects of parental involvement is sexual socialization via communication. In sexual communication, parents transmit sexual values and information to their children with the aim of influencing sexual behaviours and attitudes of their children (Lefkowitz and Stoppa, 2006; Jerman and Constantine, 2010). In one longitudinal study in the USA, Pearson and associates (2006) found a positive association between parental involvement and adolescent sexual initiation (Pearson et al., 2006). They observed that strong

parent-child relationship promotes social support and encourages adolescents to place more importance on the beliefs of their parents. These beliefs thus inform young peoples' intentions and behavioural attitudes, including sexuality. In support of this argument, Miller et al. (2008) emphasized that parental sexual discussions are more important as they focus on parental values and beliefs about sexual behaviour rather than other sources of sexual information, such as teachers, the media and other adults.

Reflecting on parental roles, Martino and colleagues (2008) assert that parents have a significant potential to influence risky sexual behaviours of adolescents, if they communicate with their children about sexual behaviours and decision-making early and often. It has also been consistently reported that mothers especially play key roles in influencing their children, particularly, daughters to adopt health promoting behaviours (Hutchinson et al., 2003; Teitelman et al., 2008; Biederman et al., 2010).

2.2.0 Parent-child sexual communication

Sexual communication between parents and their children is a widely studied subject in the developed world, but little can be said of developing countries (Izugbara, 2008; Phetla et al., 2008). The influence of parent-child sexual communication (PCSC) has been well documented in behavioural science literature. Many studies have established that PCSC provides a platform for parents to transmit their sexual value to their children.

2.2.1 Components of parent-child sexual communication

Theories of general communication typically conceptualizes communication in terms of five components: namely, (a) the source of communication (the parent), (b) the communication

itself (the message), (c) the medium or channel through which the message is transmitted (face-to-face or written materials), (d) the recipient of the communication (the young person), and (e) the context in which the communication occurs (National Research Council, 2004). Each of these components has subcomponents that affect communication in different ways. According to Guilamo-Ramos et al (2006a), variations in each of the five components represent independent variables that ultimately affect how the recipient (young person) responds to parental communication.

Jaccard and colleagues (2002) in an attempt to develop a theoretical framework for analysing parent-child sexual communication conceptualized PCSC in terms of the five components listed above. For the purposes of this study, the researcher would like to focus on two aspects of the communication framework i.e. the source and recipient characteristics that influence PCSC and sexual risk behaviours of young people.

2.2.1.1 Source characteristics influencing parent-child sexual communication

In the general sexual communication literature, two source dimensions have been found to be very significant to a person's acceptance or rejection of the propositions during sexual communication. These variables are (1) *perceived expertise*, and (2) *perceived trustworthiness* of the source (Jaccard et al., 2002a; Stiff and Mongeau, 2003). In addition to these two variables, Guilamo-Ramos and colleagues (2006b) suggest that a third important source variable in parenting context is the perceived *availability or accessibility* of the parent. These three key parental variables have rarely been studied to determine how they influence parent-child sexual communication. The study will thus examine the relationship between these constructs and parent-child sexual communication.

2.2.1.2 *Influence of perceived parental expertise, trustworthiness and availability*

Perceived expertise is defined as the perception on the part of the young person that the parent is knowledgeable, familiar with sexual topics, gives good advice and is a credible source of information. Similarly, *perceived trustworthiness* is defined as the perception on the part of the young person that the parent is honest, sincere, has good intentions and looking out for the best interest of the child; while *perceived availability or accessibility* refers to the perception that the parent is there for the young person in times of need (Jaccard et al., 2002a; Guilamo-Ramos et al., 2006b).

Research shows that these three constructs (as part of parental variables) influence communication and attitude change, and are core dimensions that affect message effectiveness (Perloff, 2003). Experimental studies in this domain have reported that when the same message is provided to two groups who differed in perceived expertise, the more expert source and the more trustworthy source typically produced more attitude change than the less expert and trustworthy sources (Albarracín et al., 2005; Johnson et al., 2005; Tedeschi et al., 2009). Yet these constructs have not been sufficiently studied in the domain of parent-child sexual communication. Guilamo-Ramos and colleagues (2006b) firmly maintain that to their knowledge, only their study investigated adolescent perceptions of parental expertise, trustworthiness and accessibility as predictors of parent-adolescent communication and adolescent risk behaviour. Adolescents perceptions of communication quality influences the effectiveness of parental messages about sex (Guilamo-Ramos and Bouris, 2008). However, the degree of effectiveness is influenced by other variable such as the *sex of the parent*, and the *communication style of the parent*. These by and large can influence the type of message and the way in which the message is delivered.

Commenting on communication style, Lefkowitz et al (2000a) in their study on two ethnically diverse groups in the USA found that Latino parent-adolescent pairs exhibited somewhat different conversational dynamics than did European American pairs. In addition, *social class* was found to be predictive of different communication styles (Lefkowitz et al., 2000a). Nonetheless, relatively few studies have been conducted to assess the real impact of parent communication style on sexual message effectiveness to young person sexual risk behaviour or communication outcome variables.

Tedeschi et al. (2009) argue that if a source (parent) is not seen as trustworthy, then any message delivered to the young person will result in little attitude change even if the source (parent) is perceived by the young person to be knowledgeable. In their opinion, the little impact is because young people cannot trust parents to be objective and honest about the underlying issues of sexual communication. Similarly, they observed in their study that parents who were good in establishing credibility with their adolescent children were also good at establishing a trusting relationships (Guilamo-Ramos et al., 2006b).

From the above discussions it is apparent that source (parent) variables in parent-child sexual communication play crucial role towards message exposure, comprehension, acceptance, retention and retrieval on the part of the recipient.

In the Ghanaian context, the issues of parental expertise, trustworthiness, availability, in addition to parental sexual communication styles have been least explored to determine their influence on sexual messages to young people.

2.2.2 Recipient characteristics and parent-child sexual communication

The characteristics of the recipient of communication are important for effective communication to occur i.e. whether the message delivered achieves the desired intent it supposed to achieve. For instance, Jaccard et al. (2002) have observed that intelligent recipient, for example, are more likely to comprehend complex messages from parents, but are likely to argue against its content and thus can potentially fail to accept the message.

2.2.2.1 *Gender of recipient and parental messages*

The gender of the communication recipient has important influence in the assessment of the impact of sexuality of communication on young people. Research suggests that daughters are generally more likely to receive extensive sexual discussions from mothers than sons (Miller et al., 1998b; Raffaelli et al., 1998; Turnbull et al., 2008; Kapungu et al., 2010). On the other hand, daughters tend to evaluate mothers more positively as sex educators compared to sons; but both daughters and sons are more comparable on father evaluations (Feldman and Rosenthal, 2000).

Previous studies have reported that young boys and girls receive different types of information and sexual messages during sexual communication with their parents (Measor, 2004; Kim and Ward, 2007). Sexual messages from parents more often portray sexual double standards. Whereas girls receive messages that highlight consequences of sexual risk-taking (Downie and Coates, 1999; Babalola et al., 2005); boys are sometimes given messages that encourage sexual exploration and experimentation (Downie and Coates, 1999; Kim and Ward, 2007; Wilson et al., 2010a).

A recent qualitative study with parents from three USA cities to evaluate an intervention programme (Parent Speak Up National Campaign [PSUNC]) found that fathers were more protective and restrictive with their daughters, but were often more permissive with their sons (Wilson et al., 2010a). As reported by the authors, one father commented thus:

“...he would be proud of a 15 or 16 year old son who reported having had sex because initiating sex is a rite of passage for males, but that he would not want to hear his daughter say such a thing because ‘that’s your little girl’, regardless of the age” (Wilson et al., 2010a, p. 121).

The above illustrates the extent of restriction fathers place on their daughters as opposed to the relatively liberal attitude towards boys.

2.2.2.2 Different parental attitudes towards communication with boys and girls

Contrary to the above, Turnbull and colleagues (2008) in their review of sexuality education reported that during sex education, boys tend to receive cold and impersonal discussion from parents, whereas parental communication with girls are generally conducted in warm and confiding manner. Other studies have confirmed this fact. For example, in qualitative study to examine gender difference in sexual conversation among some American mothers and their children, Lefkowitz et al. (2002) found that communication between mother-daughter pairs were more often mutual with positive emotions, compared to mother-son pairs.

The difference in communication is sometimes more gendered because boys are likely to be excluded from sexual communication than girls. Such a relationship and approach to sex education affect the degree and frequency of communication between boys and parents, and consequently boys tend to rely on other sources of sexual health information such as peers and the media, which may carry some untold consequences.

2.2.2.3 *Influence of recipient age on parent-child sexual communication*

An important recipient variable that has received limited attention in the parent-child communication literature is the developmental status (age) of the child (Jaccard et al., 2002a). Wyckoff and colleagues have pointed out that the current literature on parent-child sexual communication has some critical gaps, in that the majority of the studies have focused on older adolescents to the detriment of younger adolescents (Wyckoff et al., 2008). Though a few studies have looked at sexual communication between preadolescents and their parents (Klein et al., 2005), more work needs to be done.

The developmental phases, that is, early adolescence, middle adolescence, late adolescence and young adults come along with different experiences and thus different sexual information needs. For example, in terms of cognitive development, early adolescents are characterized by concrete rather than abstract thinking, unlike older adolescents (Jaccard et al., 2002a). Thus the kind of information these groups are receptive to differ.

The extent of parent-child discussions about sex with these age groups is unknown in Ghana. Thus for the purposes of this study, the researcher will consider early adolescence (10-14 years), older adolescence (15-19 years), and young adults (20-24 years). The capacity of these age groups to receive, understand, retain and utilize sexual information from parents will by and large vary.

2.2.3 Process and content of sexual communication

The process (i.e. how) and the content (i.e. topics discussed) of parent-child communication about sex have influence on the sexual risk attitudes and behaviours of young people (Phetla et al., 2008). While relatively more studies have examined the content of communication, only a few studies have considered the process of communication (Dutra et al., 1999; Pluhar and Kuriloff, 2004). Research has demonstrated that the two concepts are directly associated with each other, in that more openness in communication leads to more sexual topics being discussed (Miller et al., 1998b; Lefkowitz et al., 2002). Evidence shows that both the process and content of sexual communication differ by the sex of the parent (Lefkowitz et al., 2000b; Lefkowitz and Stoppa, 2006). Other studies have established that children generally rate mothers as better and frequent communicators than fathers (Feldman and Rosenthal, 2000; Angera et al., 2008).

2.2.3.1 *Openness in parent-child communication*

Openness in sexual communication is a *process variable* that provides a platform for mutual discussions. In especially parent-initiated sexual communication context, openness enhances the confidence of young people to talk about sexual issues. Research suggests that young people appreciate openness in sexual discussions with their parents (Whitaker et al., 1999; Phetla et al., 2008). This makes them more receptive to parental messages.

Previous investigators have established that greater levels of perceived parental openness is associated with lower levels of adolescent sexual risk behaviour (Kotchick et al., 1999; Guilamo-Ramos and Bouris, 2008). In one longitudinal study in the USA, designed to help parents learn how to address sexual health issues with their children, parents and adolescents

in the intervention group exhibited more openness in sexual communication than the control group ($p < 0.001$) (Schuster et al., 2008). As a result, the intervention group reported greater ability to communicate with each other about sex than those in the control group ($p < 0.001$) (Schuster et al., 2008). This suggests that when parents approach sexual discussions with openness, (for example, talk about their own experiences) young people are likely to also open up in reciprocation. According to Guilamo-Ramos and Bouris (2008), Latino youth in the USA, who perceive their parents as being willing to talk about how they dealt with tough issues during adolescence, their adolescent children, demonstrated less willingness to engage in sexual intercourse.

Furthermore, a review of adolescent health literature published from 2000-2006 to investigate the role of sex education within the family context in British society found that open and receptive parents who spend time with their children were found to have closer and more connected relationship than non-open parents (Turnbull et al., 2008). Receptiveness and openness allow parents to communicate sexual matters more comfortably with their children, particularly for two-parent families and those in the middle to upper socioeconomic classes.

Related to the above, Martino and colleagues conducted a randomized controlled trial in the USA to evaluate a worksite-based intervention to improve parent-child sexual communication. They found that adolescents whose discussions with their parents about sex occurred with greater openness were more able to communicate with their parents in general and about sex specifically, than their counterparts whose parents were less open (Martino et al., 2008).

2.2.4 Content of parent-child sexual communication

One of the most widely documented message variables in parent-child communication about sex is the message content, that is, what it is that parents and young people talk about when they engage in conversations about sex. Research has demonstrated that the effectiveness of parental communication in influencing young people sexual behaviour depends on the whether the communication covers a limited or a wide range of topics (Miller et al., 1998b). One recent prospective study provides a strong empirical evidence that supports the above position (Martino et al., 2008). According to Martino and associates (2008), adolescents whose parents' sexual discussions cover many topics were more likely to be equipped with the requisite knowledge to make sound sexual decisions than adolescents whose parents restrict sexual discussion to a few topics.

Unlike school-based sexual or family life education which has clearly defined contents and standardized outlines, parent-child communication about sex has no defined outline and content. Research shows that the content of sexual communication is determined by the initiator of the communication: whether child-initiated or parent-initiated (DiIorio et al., 1999). For example, if communication is parent-initiated, then the contents, accuracy and the extent of discussion with children will depend on the sexual knowledge and background experiences of the parent concerned. Thus the depth of sexual information parents deliver to their children is presumably limited to parental knowledge. Consequently, some scholars have suggested that offering sex education sessions to parents may be beneficial to boost their sexual knowledge levels to minimize their difficulties (Turnbull et al., 2008; Miller et al., 2009). This state of affairs therefore provides justification to assess and document parents' knowledge level on sexual matters as part of this research.

Comparatively, parents (both mothers and fathers) of daughters talk more about sexual topics than parents (both mothers and fathers) of sons (Wilson and Koo, 2010). Previous studies have pointed out differences in the topics that parents think should be discussed with their children (Jaccard et al., 2002a). Whereas some parents endorse the inclusion of sensitive topics such as abortion and birth control, others object to it. For instance, Werner-Wilson and Fitzharris (2001) examined how mothers and fathers get involved in sexuality education of young people and reported that generally, parents shun discussion of certain sexual topics with their children because they lack the necessary knowledge and skills to handle such sensitive topics (Werner-Wilson and Fitzharris, 2001).

2.2.5 Frequency of sexual communication

The frequency of sexual conversation between parents and children is one of the protective factors that influence communication effectiveness (Somers and Paulson, 2000; Blake et al., 2001; Babalola et al., 2005). The more parents talk about sexual issues to their children, the greater the exposure to parental messages and values, and consequently, the higher the potential to reduce sexual risk behaviours (Odimegwu et al., 2002; Guilamo-Ramos and Bouris, 2008; Namisi et al., 2009).

2.2.5.1 *Parent and child reports of communication frequency*

Assessment of communication effectiveness using communication frequency has generated debate among researchers as to whose report (parent or child) may represent the real amount of communication frequency. Whereas one divide supports report of parents, the other endorses report of children. Other researchers have argued that neither the report from parent nor child may possibly represent the ‘true’ amount of communication (Guilamo-Ramos et al.,

2007). Empirical studies that have assessed the correspondence between parent and child reports on frequency of communication have all established low correlations. (Jaccard et al., 1998; Lefkowitz, 2002; Guilamo-Ramos et al., 2007; Guilamo-Ramos et al., 2008). For example, Guilamo-Ramos and colleagues (2008) conducted an analysis on why some parents talk less with their children, and found that the median correlation between parent report on how often they talk about a topic and adolescent report on the same topic was 0.18 (25th quantile = 0.13 and 75th quantile = 0.24).

Though the correspondence between parent and child reports of communication is low, studies indicate that parents normally report greater amount of communication compared to children (Guilamo-Ramos et al., 2007; Guilamo-Ramos and Bouris, 2008). For instance, one South African study found that over 80% of parents reported communication with their children compared with 51% of young people who confirmed engaging in such conversation with parents (Phetla et al., 2008). It has also been reported that the frequency of communication depends on the type of sexual topic in question; whether sensitive or not (Kim and Ward, 2007; Martino et al., 2008; Wyckoff et al., 2008). For instance, Wyckoff et al. (2008) investigated the patterns of communication between African-American parents and preadolescents and found that parent frequently discussed less sensitive risk factor topics such as alcohol and drug use, but discussed less of condoms.

The reasons for the apparent differences in frequency of communication between parent and children have not been clearly established. However, Guilamo-Ramos et al. (2008) in their analysis on maternal reluctance to communicate have pointed out that mothers and adolescents approach sexual conversations with different motives, orientations and

expectations. This inspires how parents and children process the importance of the communication, in that what is memorable to a child might not be the same as what is memorable to a mother (Guilamo-Ramos et al., 2008).

In spite of this difficulty, some investigators maintain that it is the report of frequency of communication from children that best reflects the impact of parent message on sexual behaviour of children than parents' report of frequency of communication (Guilamo-Ramos et al., 2007).

2.2.5.2 Effects of frequency of communication on sexual behaviour

All things being equal, the more a young person receives repeated sexual messages from his/her parents, the fewer the sexual risks behaviours the young person is expected to engage in. However, previous studies examining the influence of frequency of sexual communication on sexual behaviour outcomes have reported diverse findings (Miller et al., 2001).

On the one hand, studies that have found positive outcome reported that frequent parent-child communication about sexual topics is associated with more responsible sexual behaviour, less sexual experience, and increased contraceptive use among young people (Crosby et al., 2001; DiIorio et al., 2003; Miller et al., 2009). On the other hand, a study by Fingerson (2005) involving 9530 children-mother pairs found that the greater the discussion about sex between child and mother, the more likely the child engages in sexual intercourse (Fingerson, 2005). Rodgers (1999) also found no association between frequency of parent-child sexual communication and sexual risk behaviours of sexually active adolescents (Rodgers, 1999). A similar trend was observed by Miller et al., who reported that frequency of general parent-

child communication was not associated with adolescent sexual risk behaviours. The same study however, found an association between specific sexual communication and adolescent pregnancy risk (Miller et al., 1999). All these studies used cross-sectional designs.

Some longitudinal studies have also reported similar finding as those revealed by cross-sectional studies. For example, Usher-Seriki and associates (2008) analyzed mother-daughter communication dimensions with sub-sample of National Longitudinal Study of Adolescent Health in the USA, using a logistic regression technique. They found that adolescents who had frequent communication with their mothers about sexual topics were more likely to report engaging in sexual intercourse. In Ghana, there is dearth of information on the extent of association between the frequency of parent-child sexual communication and sexual risk behaviour among young people.

2.2.6 Timing of parent-child sexual communication

One of the important aspects of parent-child sexual communication is the timing⁵ of the sexual discussion. The timing of sexual discussion influences the sexual decisions and sexual behaviours of young people (Atienzo et al., 2009; Beckett et al., 2010). Research literature suggests that parents should begin talking to their children about sex, love, and relationships before children become sexually active (O'Donnell et al., 2006; Guilamo-Ramos and Bouris, 2008). However, timing has received limited attention in research on parent-child sexual communication (Clawson and Reese-Weber, 2003).

⁵ When discussion of sexual topic(s) occurred for the first time: whether it happened before sexual initiation (on-time) or after sexual initiation (off-time).

The appropriate age to engage a child in sexual discussion depends largely on parental initiative, and to a lesser extent, children. Parents, for various reasons avoid communication about sex with their children (see section 2.2.8 of this chapter for more details of parental communication barriers). Studies suggest that some parents feel inadequately prepared to discuss sexual issues in general (Dilworth, 2009). Such parents often underrate the sexual activity of their children and thus assume that young people have no need for the information (Jaccard et al., 1998; O'Donnell et al., 2008; Dilworth, 2009). Dilworth therefore concluded that for such parents “the timing of parent-child sexual communication is often a matter of *too little, too late*”, meaning these parents may provide very scanty sexual information to their children or avoid the discussion altogether.

2.2.6.1 *The timing versus content of sexual communication*

There is a link between the timing and content of communication about sex. Earlier investigations on the timing of sexual communication were all limited in focus because the discussions centred on few sexual topics (Miller et al., 1998c; Clawson and Reese-Weber, 2003). Whereas Miller et al. (1998c) examined the influence of timing of mother-adolescent condom discussion on adolescents condom use only, Clawson and Reese-Weber et al. (2003) looked at timing of discussion of five sexual topics, namely condoms, number of partners, HIV/AIDS testing, birth control and number of pregnancies. Only one recent study expanded the scope by assessing the timing of communication on twenty-four specific sexual topics (Beckett et al., 2010).

2.2.6.2 *Influence of timing of sexual communication on sexual risk behaviour*

The relationship between the timing of sexual discussion and sexual risk behaviour among young people is mixed. Whereas some studies have found both positive and negative associations between timing of communication and specific sexual risk behaviours, others have found no relationship. For instance, a study by Clawson and Reese-Weber (2003) found that adolescents who had on-time⁶ discussions about sex with both fathers and mothers initiated sexual intercourse at older age and also had fewer lifetime sexual partners. The same study reported that adolescents who received on-time sexual discussion with parents had a greater likelihood of having been pregnant or gotten someone pregnant than their counterparts who had off-time⁷ discussion (Clawson and Reese-Weber, 2003).

Additionally, Miller and colleagues' (1998c) assessment regarding timing of discussion of condom use reported that mother-adolescent discussions that occurred before initiation of sexual intercourse were associated with greater condom use. On the contrary, mother-adolescent pairs whose discussion on condom use occurred after adolescent had initiated sex did not experience increased condom use.

In a recent investigation in Morelos, Mexico, Atienzo et al. (2009) observed that sexual discussion on both sexual risk and prevention was not associated with earlier age at first intercourse, compared to those whose discussion occurred after initiation of sexual intercourse. Contrary to the findings by Miller et al. (1998c) on condom use, Atienzo et al. (2009) found that condom use at first intercourse was more frequent with adolescent who had sexual discussion prior to sexual initiation.

⁶ Parent-child sexual discussion occurring before a young person initiates sexual intercourse.

⁷ Parent-child sexual discussion occurring after a young person initiates sexual intercourse.

Considering the timing of sexual discussion and the inconsistencies in sexual risk behaviour outcomes, there is the need for a critical look at the timing of initiation of sexual talks. Presently in Ghana, very little is known about studies examining the timing of sexual communication vis-à-vis sexual behaviour of young people.

2.2.7 Outcome of parent-child sexual communication

Communication effectiveness is a function of exposure to a message (Jaccard et al., 2002). Previous investigators have found both direct and indirect associations between parent-child sexual communication and sexual behaviour of children (Pluhar and Kuriloff, 2004; Guilamo-Ramos et al., 2007; Izugbara, 2008).

2.2.7.1 Positive outcome of parent-child sexual communication

On the positive side, most of the studies on PCSC concluded that parent-child discussions about sex is protective against high-risk sexual behaviours, in that more sexual discussions led to fewer sexual risk-taking among young people (Jaccard et al., 2002a; Miller, 2002; Aspy et al., 2006; Guilamo-Ramos et al., 2006b; Iyaniwura, 2006; Aspy et al., 2007; Ogle et al., 2008; Atienzo et al., 2009). Protective behaviours improve sexual health outcomes for young people (Hindin and Fatusi, 2009; Nappi et al., 2009). In addition, evidence shows PCSC has the rippling effect of influencing partner discussions about sex and sexual risk-taking (Whitaker et al., 1999).

For example, one community-based study in the USA found that adolescents whose parents talked to them about sexuality were sexually abstinent. Those who were sexually active were more likely to have one sexual partner and use birth control for the prevention of pregnancy

and sexually transmitted diseases (STDs) (Aspy et al., 2007). Similar results have been obtained from related studies such as (Hutchinson et al., 2003; Wang et al., 2007; Zhang et al., 2007; Ballard and Gross, 2009; Kapungu et al., 2010). In spite of the protective effect of parent-child sexual communication, Aspy and colleagues (2007) acknowledged some limitations of their study, including failure to establish causality because they utilized cross-sectional data, and the overall response rate for the study was low.

2.2.7.2 *Adverse outcome of parent-child sexual communication*

In contrast, to the above, a few of the studies have established adverse link between PCSC and young people sexual risk behaviour, especially for young boys. These studies found that parental sexual communication results in increased indulgence in sexual risk activities, such as initiating early sex, multiple sexual partnerships, failure to use condom, among others (DiIorio et al., 2003; Amoran et al., 2005; Babalola et al., 2005; Pearson et al., 2006; Aspy et al., 2007). For instance, in one cross-sectional survey among young people in Cote d'Ivoire, Babalola et al. (2005) found that communication with parents about sexual abstinence was associated with early sexual initiation among males.

In ascribing reasons for the negative outcomes, Babalola and colleagues (2005) assert that parents portray sexual double standards with regards to communication with boys and girls. They argue that parental sexual communication is biased towards young men; in that parents tend to initiate sexual talks with their sons only after parents had observed visible signs of sexual activities of their sons.

The differences in behavioural outcomes in PCSC may be mediated by the extent, nature, quality and quantity of communication as well as the nature of relationship between parents

and children (Aspy et al., 2007). Relating the contrasting finding of PCSC and youth sexual risk outcome to the African context, Namisi et al. (2009) affirmed the mediating factors of quality and nature of communication. They maintain that the inconsistency might be due to the quality and nature of PCSC in the Africa setting (Namisi et al., 2009). They therefore suggested that the relationship between PCSC and sexual risk behaviour should be further explored.

2.2.8 Barriers to parent-child sexual communication

Studies have demonstrated that children prefer to receive sexual information from their parents (Guilamo-Ramos and Bouris, 2008; Turnbull et al., 2008; Miller et al., 2009), while many parents on the other hand, have the desire to communicate with their children on sexual issues (Jerman and Constantine, 2010). In spite of this mutual preference for each other and the many advantages of PCSC, many parents fail to engage their children in sexual discussions (Guilamo-Ramos et al., 2008). Many scholars have documented various reasons why PCSC may fail to occur (Jaccard and Dittus, 2000; Jaccard et al., 2002a; DiIorio et al., 2003; Lefkowitz and Stoppa, 2006; Miller et al., 2009; Jerman and Constantine, 2010). Research indicates that the barriers to PCSC do not only emanate from parents but children as well (Hutchinson and Cooney, 1998).

2.2.8.1 Parental barriers in parent-child sexual communication

Parental difficulties in communicating sexual information to their children are related largely to attitude and socio-cultural beliefs (Awusabo-Asare et al., 2008; Izugbara, 2008). Some studies have demonstrated that most parents lack courage and confidence in their capacity to

initiate sexual communication with their children because of fear of encouraging or introducing children to early sexual activity (DiIorio et al., 2000; DiIorio et al., 2003; Izugbara, 2008; Jerman and Constantine, 2010). This parental barrier is heightened when the communication involves young people in early adolescence ages 10-12 years. Other studies have affirmed this view (Schuster et al., 2008; Wilson et al., 2010b). Schuster and colleagues (2008) for example, established that apart from parents being uninformed about the sexual and reproductive facts, they are also unsure of *how* and *at what age* to address various issues.

In addition, parent-related communication barriers that have been reported widely across several studies include lack of accurate information on sexual and reproductive health matters, embarrassment, discomfort, lack of knowledge and skills to carry out sexual discussions, (Hutchinson and Cooney, 1998; Rosenthal et al., 1998; Jaccard et al., 2000; Kirkman et al., 2002; Lefkowitz and Stoppa, 2006; Pluhar et al., 2006; Izugbara, 2008; Kirby, 2008; Martino et al., 2008; Turnbull et al., 2008; Ballard and Gross, 2009; Miller et al., 2009; Poulsen et al., 2010). Within these barriers, embarrassment and discomfort have been widely cited as major challenges. Guilamo-Ramos and Bouris (2008) assert that the reasons why parents feel embarrassed during sexual communication are not well understood. Some scholars have suggested that the reason for parental embarrassment might be due to generational differences between parent and children, as well as cultural conceptualization of sexuality matters as issues that are preserved for adults and married people (Guilamo-Ramos and Bouris, 2008; Izugbara, 2008; Namisi et al., 2009). It is also known that in most African societies, issues about sexuality are not discussed in the open (Izugbara, 2008).

It has also been documented that some parents refuse to talk about sex to their children because they think that the information they (parents) have is outdated, and that young people may not value it (Speizer et al., 2001). In one study in the USA, Miller and colleagues examined factors that promote PCSC among a sample of 1,066 pairs of African American mothers and their children aged 9-12 years. The study confirmed the above communication difficulties. They therefore concluded that for parents to be able to communicate effectively with their children, parents require the knowledge, comfort, skills, and confidence, rather than just encouraging early initiation of sexual discussions (Miller et al., 2009).

The consequence of these communication difficulties is that most parents avoid sexual discussions with their children. Even where parents attempt to communicate, they do so superficially (Miller et al., 2009; Jerman and Constantine, 2010).

Children uncooperative attitudes and behaviours compound parental difficulties in sexual discussion with their children. Whereas some children tell parents they already know what they need to know about sex (Jaccard et al., 2000; Jaccard et al., 2002a), other children refuse to listen to parents when issues of sexual communication is raised (Eastman et al., 2005). As a result, most parents forsake talking about sexual and reproductive health issues. For example, qualitative evidence from Ghana, as part of the 2004 National Survey of Adolescents confirmed gaps in child-parent/adult communication on sexual and reproductive health, which was apparently reported by both young people and adults (Awusabo-Asare et al., 2008). The study identified cultural inhibition and attitude as the main problem militating parent-adolescent communication. While mothers reported more discussions with their daughters,

fathers tended to defer and refer any discussions on sexual and reproductive health to mothers and friends.

2.2.8.2 Reasons for parental reluctance in communication

There are underlying reasons why some parents are reluctant to engage in sexual discussions with their children. Jaccard and associates (2000) investigated twenty-one specific reservations parents have regarding sexual communication with their children using correlation and confirmatory factor analysis techniques. They identified a coherent five-factor structure that brings about parental reservations about engaging in sexuality conversation with their children (Jaccard et al., 2000; Jaccard et al., 2002a). These underlying factors are:

- ✓ Having the requisite knowledge and skills to explain things;
- ✓ Adopting a cooperative orientation toward mutual communication;
- ✓ Efficacy of communication;
- ✓ Situational constraints; and
- ✓ Fear of encouraging sexual activity.

When these perceptions sway to the negative, then the probability of parents engaging in communication with their children becomes minimal. For example, a parent who perceives that talking to his/her child about sexual issues risks exposing the child to become promiscuous will be highly reluctant to do so.

2.2.8.3 Young people difficulties in parent-child communication

Children also articulate some reservations or difficulties with regards to communicating with their parents about sex. Documented evidence on the concerns of young people regarding PCSC include the fear that parents would ask too many personal questions, parental

suspicious that children are sexually active, parents not understanding sexual concerns of young people, children holding the perceptions that parents might think children already know enough about sex, and embarrassment (Jaccard et al., 2000; Lederman et al., 2008; Trinh et al., 2009). There is also evidence suggesting that parents are sometimes judgemental (Pluhar and Kuriloff, 2004), while some young people feel that parents do not have answers to their concerns (not knowledgeable) regarding sexual and reproductive health (Speizer et al., 2001; Wang, 2009).

Additionally, other scholars have established that concerns of being uncomfortable and feeling embarrassed when discussing sexual issues with their parents; and concerns that parents would be embarrassed are stronger predictors of communication behaviour of young people (Jaccard et al., 2000; Jaccard et al., 2002a; Guilamo-Ramos et al., 2006a; Meneses et al., 2006; Guilamo-Ramos and Bouris, 2008; Guilamo-Ramos et al., 2008). Some young people advance the view that their embarrassment feeling is founded in the negative reactions their parents may exhibit, particularly when parents perceive or get to know about the sexual activity of their children (Guilamo-Ramos et al., 2006a). Research also indicates that children comparatively feel more uncomfortable than parent during sexual communication (Pluhar and Kuriloff, 2004).

Analogous to international studies, one Ghanaian study has also documented that young people are not able to discuss sexual issues or talk about their intimate relations with their parents (Kumi-Kyereme et al., 2007a), though both parents and children know the importance of sexual communication (Awusabo-Asare et al., 2008). The study, however, did not specify the reasons why young people find it difficult to communicate, and thus recommended further

investigation into the issue of parent-child sexual communication (Kumi-Kyereme et al., 2007a).

2.2.9 Gender dynamics in parent-child sexual communication

The sex of both parents and young people makes a difference in sexual communication. Evidence shows that the sex of the parent influences the frequency of communication, how the message will be transmitted to the child and how it will be imbibed. For instance, one study in the USA that examined the content, characteristics, and comfort level in parent-child (both sexes) discussions about sexuality found that young people were more likely to discuss sexual topics with their mothers than their fathers (DiIorio et al., 1999). In addition, other studies have consistently demonstrated that young girls talk more with their mothers than with their fathers on sexual issues (Raffaelli et al., 1998; Lefkowitz et al., 2002; Turnbull et al., 2008; Miller et al., 2009). For example, in the USA, Miller et al. (1998) examined family communication about sex in the context of ‘what parents say and what adolescents listen’ and found that the sex of the adolescent influences the sex of the parent with whom discussions took place. That is to say, mothers were more likely to communicate with their daughters about sex than with their sons; whereas fathers were more likely to discuss sex with their sons than with their daughters.

Most studies on PCSC have generally focused on mother-child samples (Hutchinson et al., 2003; Jaccard et al., 2003; Lefkowitz et al., 2003; Gale McKee et al., 2007; Guilamo-Ramos, 2010; Guilamo-Ramos et al., 2010; Hare et al., 2010), and ignore father participation for reasons such as difficulties in recruiting fathers and cost (Costigan and Cox, 2001). Involving

fathers will provide valuable information to enhance our understanding of the role and influence on young people regarding communication.

It has also been reported that adolescents evaluate their mothers more positively as sex educators than their fathers (Jaccard et al., 2002a). To find reasons for this apparent difference, Goldman and Bradley (2004) studied some Australian parents as sexuality educators of their children in the technological age and concluded that the absence of the father at home is a major determinant for their little involvement. This probably could be due to the fact that in most families fathers are the main income earners and thus spend considerable amount of time outside the home working. Related to this is the fact most fathers find it difficult to communicate with both sons and daughters, and also hold the perception that sex education is a job for only women (Turnbull et al., 2008). That is why fathers purportedly defer and refer sexual discussions to mothers or friends (Awusabo-Asare et al., 2008).

2.2.10 Traditional approach to sexual communication in Africa

Communication about sex in the African setting differs somehow from what pertains in the West. In many Sub-Saharan African countries including Ghana, sexuality discussions were historically considered a taboo (Botchway, 2004; Amuyunzu-Nyamongo et al., 2005; Mbugua, 2007; Osei, 2009; Bastien et al., 2011). In the past, sexual communications in many traditional African settings were often delegated to adults such as aunts, grandparents and other the family members (Kumi-Kyereme et al., 2007b). Thus direct parental teaching or involvement in the sexual socialization of children was minimal (Bastien et al., 2011). However, as a result of increased urbanization and social change processes, this form of

traditional practice is gradually dying off (Speizer et al., 2001; Bastien et al., 2011). Recent empirical evidence suggests that parents are now assuming central roles in sexual communication and sexual socialization of their children, similar to Western practices. Parents are principal agents for imparting the necessary knowledge and skills relevant for healthy sexual reproductive relationships (WHO, 2007; Biddlecom et al., 2009). Izugbara (2008) argues that because sex is not a popular topic of discussion between many African parents and their children, parents tend to be cautious of violating the acceptable cultural practices regarding sexual expression.

The changing context of sexual communication in Africa, and for that matter Ghana, is due to the changing family system from extended to nuclear (Speizer et al., 2001). The literature on direct parental sexual communication is sparse in Ghana. It is therefore necessary to explore experiences of families regarding intergenerational communication about sexual issues (Botchway, 2004).

2.3.0 Sexual risk behaviour among young people

The sexual behaviour of young people is in most cases influenced by their cultural norms, mores and their sexual orientation. The following behavioural themes are covered in this review: premarital sex, age at sexual initiation, multiple sexual partnerships and pregnancy.

2.3.1 Premarital sexual initiation

Premarital sexual activity is common among young people from different cultures across the world. Several studies have reported that premarital sexual activity is prevalent with the present generation of young people than the previous generation (Mensch et al., 2005, 2006;

Juárez et al., 2008; Fatusi and Hindin, 2010). The increase in the prevalence of premarital sexual intercourse is due to the trend towards later marriage in many countries due to longer years in school (Mensch et al., 2006; Wellings et al., 2006).

The prevalence of premarital sexual initiation varies widely across cultures. Evidence shows that in sub-Saharan Africa, about 8 in 10 young women engage in sexual intercourse before the age of 20 and about 4 in 10 before marriage. However, in developed countries about 8 in 10 young women have intercourse as adolescents, and 7 in 10 before marriage; while in the Latin America and the Caribbean, 6 in 10 young women have had sex in adolescence; with only 3 in 10 before marriage (WHO, 2008).

2.3.2 Age at heterosexual sexual initiation

Most young people initiate sexual intercourse at younger ages (Rose et al., 2005). Research indicates that the age at onset of sexual activity varies widely among young people, ranging from early adolescence (10-14 years) for some youths to adulthood (25 years and above) for others (Boislard and Poulin, 2010). Empirical evidence suggests that in sub-Saharan Africa, the prevalence of premarital sexual intercourse before age 18 years has increased significantly over time (Mensch, 2007). This confirms the evidence that the rate of sexual activity increases with age during adolescence (Hessburg et al., 2007).

The age at which young people initiate sexual intercourse is of particular significance to public health because of the potential risks associated with it (Wellings et al., 2006; Boislard and Poulin, 2010). Investigators such as Harrison et al. (2005) and Wellings et al. (2006) have reported that sexual initiation at an early age is more likely to be non-consensual, thus

signifying the lack of assertive and negotiation skills, hence the need for parent-child sexual communication.

2.3.2.1 *Prevalence of early sexual initiation*

Regarding the prevalence and consequences of early sexual initiation, O'Donnell and colleagues, for example, conducted a longitudinal research in the USA using a large sample of urban African-American and Latino youth from 7th grade (age 12 years) through 10th grade (15 years). The investigators documented that at 7th grade, over 30% of males and 8% of females had initiated sexual intercourse. However, by 10th grade, 66% of boys and 52% of girls had initiated sex (O'Donnell et al., 2001; Stueve and O'Donnell, 2005).

Also, a study among young people aged 12-24 in Ghana found peer behaviours and influences as predictors of sexual behaviours (Karim et al., 2003). Youth who perceived that their friends were sexually active were more likely to be sexually experienced than were youth who thought that their friends had not yet initiated intercourse; the effect was larger for females than for males. However, discussion with family members about avoiding sex was associated with a lower probability of ever had sexual intercourse among males (*Ibid*).

Further, in a national cross-sectional survey of black men in the USA, Bakken and Winter (2002) observed that mothers' employment status predicted the age at sexual initiation; i.e. black males whose mothers spent more time working outside the home initiated sexual activity at an earlier age than their peers whose mothers relatively spend more time at home. However, Sieverding and colleagues (2005) found the contrary, that successful parental monitoring does not predict sexual initiation. In the Ghanaian setting, it is not clear which of

these factors will potentially influence sexual initiation since information is limited. This makes it necessary to examine familial factors that enhance or discourage early sexual initiation.

2.3.2.2 Sex differences in sexual initiation and prevalence among young people

In Ghana, evidence from various nationally representative surveys generally suggests that more young girls than young boys initiate sexual activity early (see Table 2.1 for detailed report on levels of sexual activity among Ghanaian young people aged 12-24 years). For example, the 2008 DHS reports that among females aged 20-24, 8% initiated sex before age 15 years; 44% had sex before they were 18 years; while by age 20 years, 63% had had sex intercourse. In sharp contrast, sexual activity among males aged 20-24 shows that 5% initiated sex before age 15 years, 28% were sexually experienced by age 18 years, while by 20 years of age, 78% had had sexual intercourse (GSS et al., 2009a). Similar trends are reported by other studies such as the 2004 National Adolescent Health Survey and the 2003 DHS (GSS et al., 2004; Awusabo-Asare et al., 2006).

With regards to prevalence of sexual activity, evidence suggests sexual activity is more common among young females than males. For instance, the Multiple Cluster Indicator Survey (MICS) 2006 reports that among those aged 15-24 years, 85% of females were sexually experienced compared to 57% of males. Earlier studies on young people in Ghana have reported similar trends in sexual activity among female and males (Agyei et al., 2000; Awusabo-Asare, et al., 2006; Karim et al., 2003).

Table 2.1 below provides information about the prevalence of sexual activity among Ghanaian young people aged 12-24 years according to age and sex. The Table demonstrates a diverse trend in the prevalence of sexual activity by sex and age. Generally, data across the various surveys indicates that females initiate sexual intercourse earlier than their male counterparts with the exception of Karim et al.'s study. However, as age increases, more young men tend to engage in sexual activity than young women. For example, whereas about 8% of young girls and 4% to 5% of young boys had sex before age 15 years; by age 20 years, 55% to 63% of girls and 71% to 78% of boys had been sexually experienced, according DHS 2003 and DHS 2008.

Similarly trends pertain elsewhere in Africa. For example, one study among Nigerian undergraduate students found that more female students than their male counterparts (65.7% vs 42.2%) had their first sexual encounter as an adolescent (Okafor and Obi, 2005). In a study to examine the predictors of sexual initiation among a nationally representative sample of Nigerian adolescent 15-19 years, Fatusi and Blum reported that 22% females and 18% of males were sexually experienced. Furthermore, in a study of some young people aged 15-24 years in Lome, Togo, Speizer and colleagues (2001) found that 48% of unmarried females aged 15–19-years and 44% of their male counterparts had ever had sex. Among the unmarried 20–24-year-olds, the percentage of sexually experienced females and males increases to 90% and 85% respectively.

Table 2.1 Prevalence of Sexual Activity among Ghanaian Young People aged 12-24 years by various surveys

Percent of young people aged 12-24 who have ever had sexual intercourse according to different surveys in Ghana			
Study and year	Age group (years)	Female (%)	Male (%)
Awusabo-Asare et al., 2006	12-14	2	1
	15-19	30	16
Karim et al., 2003	12-14	4	10
	15-19	28	35
	20-24	72	78
GSS et al., 2008 (2006 MICS)	15-19	36	22
	20-24	86	67
Maya, 2009	12-19	62	38
GSS et al., 2004 (2003 GDHS)	Before 15	8	4
	Before 18	43	26
	Before 20	55	71
GSS et al., 2009 (2008 GDHS)	Before 15	8	5
	Before 18	44	28
	Before 20	63	78

Source: Awusabo-Asare et al., 2006; GSS et al. 2009; GSS et al., 2008; GSS et al., 2004; Karim et al., 2003; and Maya, 2009.

Parental factors such as parent-child sexual communication, monitoring or supervision and parent-child connectedness influences early sexual initiation (Romer et al., 1999; Babalola et al., 2005; Browning et al., 2005; Rose et al., 2005; Sieverding et al., 2005; Buhi and Goodson, 2007; Biddlecom et al., 2008).

2.3.3 Consequences of early sexual initiation

Research on adolescent development has shown that early sexual initiation is associated with sexual risk behaviours and negative health outcomes (Rostosky et al., 2003). Many investigators (including Harrison et al., 2005; Stueve and O'Donnell, 2005; Mensch, 2007) have reported that young people who initiate sexual intercourse at an early age have a higher propensity for taking more lifetime sexual partners and having frequent intercourse. Early sex initiators are also more likely to report a history of unprotected sex, unplanned pregnancy, sexually transmitted infections and having sex while drunk (O'Donnell et al., 2001; Rostosky et al., 2003; Harrison et al., 2005; Stueve and O'Donnell, 2005; Wellings et al., 2006; Mensch, 2007; O'Donnell et al., 2008). Due to these risks, Dixon-Mueller (2008) has warned that early sexual activity among young people whether within or outside marriage, can lead to negative reproductive health outcomes. Affirming this opinion, Juárez et al. maintain that one of the common consequences of premarital sexual activity among young people is the risks of unintended pregnancy which leads to unplanned birth and unsafe abortion (Juárez et al., 2008).

In sub-Saharan Africa, one study that investigated the empirical association between premarital sex and leaving school among participants at onset of adolescence (age 12 years) found that girls are more vulnerable to drop out of school than boys once they have started premarital sex (Biddlecom et al., 2008). The investigators also pointed out that girls are more likely than boys to leave school before completing secondary or primary school; and among those completing primary school, before progressing to secondary school.

2.3.4 Multiple sexual partnerships

One of the risky sexual behaviours common among young people is taking more than one sexual partner either in the form of serial monogamy⁸ or concurrently⁹. This practice exposes young people to various reproductive health challenges such as unintended pregnancy and acquisition of sexually transmitted infections (STIs) including HIV/AIDS. In one study in the USA, about 23% of young women aged 18-24 years reported that they had ever engaged in concurrent sexual partnerships (Adimora et al., 2002). The same study found that about 35% of those whose first sexual intercourse occurred at age 12 or 13 years were more likely to report concurrent multiple sexual partnerships in later life.

Research has shown that multiple sexual partnership is more common amongst young men than young women (Afenyadu and Goparaju, 2003; Adimora et al., 2004; Carter et al., 2007). At the same time, evidence suggest that rapid turnover of sex partners is common among men with multiple recent sex partners than women (Kalichman et al., 2011). A study of in-school and out-of-school adolescents aged 15-24 years in Ghana revealed that males were more than twice likely to have multiple sexual partners than females (55% vs. 26%); while in-school adolescents were more likely than out-of-school adolescents to engage in multiple sexual partnership (Afenyadu and Goparaju, 2003). Similar pattern of prevalence has been reported by some investigators in the USA. Their assessment of concurrent sexual partnership among African-American over the previous five years revealed a prevalence of 53% and 31% among men and women respectively (Adimora et al., 2004). Other studies also report that multiple

⁸ Serial monogamy refers to a series of short-term, exclusive sexual relationships entered into consecutively over the lifespan.

⁹ Concurrent partnership is defined as engagement in two or more sexual relationships at the same time.

sexual partnership occurs among pairs of young girls with older men, and among men who have sex with women of the same age or younger (Streel, 2008).

In sub-Saharan Africa, more than 40 percent of sexually experienced adolescent males and about 10 percent of adolescent females have had two or more sexual partners in the past one-year. In 2004, Mattson and associates investigated sexual practices and risk factors HIV infection among young men in a nested case-control study in Kisumu, Kenya, and found that 63% had had at least one concurrent sexual partners in their lifetime (Mattson et al., 2007). Similar results have been reported by Izugbara and Modo (2007) in a study to determine the risks and benefits of multiple sexual partnerships among rural Nigerian adolescent boys. They reported that more than 62% of all sexually active among the study sample stated they have ever had more than one sexual partner (Izugbara and Modo, 2007). Furthermore, a more recent study in Kisumu, Kenya, to estimate the prevalence of concurrent sexual partnership among young people 18-24 years found a point prevalence (six months before the survey) of 6.2% and 9.4% respectively among sexually active females and males (Xu et al., 2010).

2.3.4.1 Reasons for engaging in multiple sexual partnerships

Young people engage in multiple sexual partnerships for various reasons. Whereas some scholars maintain that peer pressure, poverty and poor parental control are the reasons for young people engaging multiple sexual partnerships (Karim et al., 2003), one study in the USA reported that most common reasons were that multiple partners fulfil different needs, and that it is a man's nature to have multiple partners (Carey et al., 2010). Prominent of the reasons is the demonstration of 'masculinity' among young males per the number of girls they has sex with. This opinion is held strongly in most African countries. Izugbara and Modo's

study reported that young Nigerian males “frequently judged themselves by the number of girlfriends they have, with those who have many sex partners frequently seen as more ‘male’ and respectable than those who do not or are unable to do so” (Izugbara and Modo, 2007).

2.3.5 Unintended pregnancy and childbearing

By definition, unintended pregnancies are those pregnancies that, at the time of conception, are either mistimed (the mother wanted the pregnancy to occur at a later time) or unwanted (mother did not want it to occur at that time or anytime in the future) (Logan et al., 2007). Global estimates suggest that between 20-30% of girls have had baby before age 18 years (WHO, 2006).

In the past, adolescent childbearing was confined to marriage; but today, early childbearing increasingly occurs outside of marriage (Blum and Mmari, 2006). Studies show that pregnancy among young people – both within and outside marriage occurs in all societies, but the level of pregnancy and childbearing varies from one country to the other (Singh and Darroch, 2000; Blum and Mmari, 2006). For example, a cross-country analysis of adolescent birth and abortion data, revealed that the level of adolescent pregnancy varies by a factor of almost 10 across the developed countries, from a very low rate in the Netherlands (12 pregnancies per 1,000 adolescents per year) to an extremely high rate in the Russian Federation (more than 100 per 1,000) (Singh and Darroch, 2000).

Evidence suggests that in many countries across the world, as many as 50% of all pregnancies are unplanned, and about 25% are unwanted (Donnay, 2000; Bossert et al., 2009). The unwanted pregnancies disproportionately occur among young unmarried girls who often lack

access to contraception. For instance, Logan and colleagues (2007) in their study on the consequences of unintended childbearing, found that among births to females less than 20 years, 21% were unwanted and 57% were mistimed.

Research shows that sub-Saharan African countries have the highest level of adolescent childbearing. More than 50% of women in sub-Saharan Africa give birth before the age of 20 (Neelofur-Khan, 2007). Also, a review of adolescent health literature in developing countries found that adolescent childbearing rates in sub-Saharan Africa range between 120 to 160 per 1000 in a year (Blum and Mmari, 2006). Current levels of adolescent childbearing are moderate to high in most areas of the developing world.

2.3.5.1 Prevalence of pregnancy and child bearing among young people in Ghana

In Ghana, pregnancy among young people is widespread across all regions. Although Ghana has experienced socio-cultural transformation, early marriage and childbearing continue to exist, especially in rural and poor urban communities (Awusabo-Asare et al., 2006). Nationally, about 13% of adolescents aged 15-19 had began childbearing according to the 2008 GDHS; with wide variation in childbearing rates according to residence and by region (GSS et al., 2009a). For instance, the childbearing rate among urban adolescents is 11% compared to 16% among their rural counterparts.

Prevalence of pregnancy among young people increases with age. Results from a fertility survey of unmarried young people in the Greater Accra and Eastern regions of Ghana, Agyei et al. (2000) revealed a high pregnancy rate among the sexually active participants. Whereas

the pregnancy rate among older adolescents 15-19 year was 37%; that of young adults aged 20-24 years as about 70%.

2.3.5.2 *Protective variables against adolescent pregnancy and childbearing*

In their review of literature on adolescent pregnancy and childbearing, Blum and Mmari (2006) identified three variables associated with physiological development and maturity as significant factors for early pregnancy and childbearing. These are age of the adolescent, early pubertal development and age of marriage. Their review also found that risk factors for pregnancy were low future aspirations, being employed and having a pregnant friend. However, they observed that higher education (both sexes), knowledge of contraception (females), living with both parents (females) as key protective factors against adolescent pregnancy and childbearing. For instance, in Kenya, one study found that when a father lived in the household, his never-married 12-19 year old daughter was less likely to have ever had sex, to have had an unwanted pregnancy or to have engaged in recent sexual activity than when neither parent or only the mother lived in the household (Ngom et al., 2003).

Analogous to the above findings is a Brazilian study on health risk behaviours and associated risk and protective factors among unmarried adolescents in Santos. The study revealed that when adolescents live with both parents, they are significantly less likely to be pregnant or become a parent (Anteghini et al., 2001). This demonstrates the importance of parental influence on sexual risk behaviour of adolescents.

2.4.0 Sexual risk behaviours among young people in the Brong Ahafo region

Available sexual health data on Brong Ahafo region suggests that sexual activities among young people are widespread. For instance, the 2006 Multiple Cluster Indicator Survey reveals that among young people aged 15-24 years, 48% of men and 57% of women had ever had sexual intercourse (GSS et al., 2008). High risk sexual activities are quite prevalent in the region. About 94% of sexually active young men aged 15-24 years and 60% young women of the same age group had ever had sex with non-marital, non-cohabiting partners. This is higher than the national average of 88% young men and 52% young women of the same age bracket. In terms of multiple sexual partnerships, young men in the region tops all the other regions with about 10% having had sex with more than one sexual partner over the previous 12 months, compared with a national prevalence of 6%.

In addition, total fertility rate (TFR¹⁰) in the Brong Ahafo region is one of the highest in Ghana. Whereas the national TFR is 4.0 children per woman, that of Brong Ahafo region is 4.8 (GSS et al., 2009b). The 2008 DHS reports that over 22% of women in the region aged 15-19 years had already began childbearing compared to a national prevalence of 13%. This state of affairs has adverse socioeconomic consequences for the young people in the region as educational and job opportunities may be foreclosed, especially for girls.

Furthermore, this high risk sexual behaviour predisposes the young people to the risk of contracting HIV/AIDS and other sexually transmitted diseases. Trends analysis of HIV

¹⁰ The TFR is the number of children a woman would have by the end of her childbearing years if she were to pass through those years bearing children at the currently observed age-specific fertility rate.

sentinel survey data for Brong Ahafo region over the last five years (2005-2009) reveals a marginal decline in median prevalence from 3.3% to 2.9%, (NACP, 2010).

Studies indicate that risk factors for HIV among young people include early sexual initiation, failure to use condom, sex with older men and sex with non-marital non-cohabiting partner (Mba, 2003; NACP, 2010). Hence, the need to investigate parent-child sexual communication and its impact on sexual behaviour of young people in the Brong Ahafo region.

2.5.0 Family factors

Selected family factors pertinent to sexual communication and sexual risk behaviour reviewed herein include: family structure, parental monitoring or supervision, family and child religiosity, and family connectedness.

2.5.1 Family structure and sexual behaviour of young people

The influence of family structure on sexual risk behaviour of young people has been a subject of several research investigations. The outcomes of these investigations have been inconsistent. While some studies reported that living in a two-parent home is protective for premarital sex and multiple sexual partners (Bakken and Winter, 2002; Aspy et al., 2007; Boislard and Poulin, 2010; Haglund and Fehring, 2010), others found that young people live single-parents families more likely to be sexually abstinent and avoid risky sexual behaviours (Pearson et al., 2006).

Again, a few studies have also documented the effect of family structure on the sexual behaviour of boys and girls. The trend shows that girls living with single parents are more likely to report premarital sex than their counterparts from two-parent families (Zhang et al.,

2007; Peres et al., 2008). Whereas Pares and colleagues (2008) reported that Brazilian young girls living with one parent or neither parents were sexually active than their peers who live with both parents, Zhang et al. (2007) found that out-of-school Chinese girls who live with single parents were 5 times more likely to have engaged in premarital sexual intercourse than girls who live with both parents.

Similarly, one study in Britain found that males from single parent families were 50% more likely than those from two-parent families to have initiated sexual activity before age 17. The study also established that the age at first sex was two years higher for young men who were raised in two-parent homes than for those whose parents were divorced (Turnbull et al., 2008).

In Africa, one study in Nigeria, which assessed the impact of health education on sexual risk behaviour of high school students, confirmed the protective nature of two-parent families. The investigators reported that adolescents who lived with both parents were less likely to have experienced sexual intercourse at baseline than those who lived with single parents and other relations (Daboer et al., 2008). These findings affirm the potential influence of family structure on sexual behaviour young people.

Given the significant influence of family structure on sexual behaviour, the present study, will assess how family structure influences parent-child sexual communication in the Ghanaian setting; and how such communication in turn impacts on sexual behaviours of young people.

2.5.2 Parental monitoring or supervision

Both longitudinal and cross-sectional studies have generally reported that parental monitoring reduces young people's tendency to initiate sex. Supporting this view, Browning and associates have pointed out that parental monitoring facilitates socialization of parental sexual values that support delaying of sexual activity (Browning et al., 2005).

In their 2 year longitudinal study, Yang and colleagues (2007) investigated the association between parental monitoring and communication, and adolescent risk involvement among 817 African-American parent-adolescent pairs. They reported that girls who perceived consistent parental monitoring were generally less likely to engage in sex than their peers who perceived inconsistent parental monitoring. They also observed perceived parental monitoring reduced the probability of being sexually experienced as they grew older.

Similar observation has been reported by Huang et al. (2010), who used national longitudinal data on youth in the USA to examine the impact of parental monitoring during early adolescence. They observed that adolescents who received high parental monitoring were less likely to engage in early initiate sexual intercourse before age 14 years than their peers who reported low parental monitoring. The above studies have been confirmed by Seiveding et al. (2005).

Studies in sub-Saharan Africa have also confirmed the protective effect of parental monitoring on sexual initiation. In nationally representative cross-sectional surveys in four sub-Saharan Africa countries (Burkina Faso, Ghana, Malawi and Uganda), Biddlecom and associates (2009) explore the role of parents in adolescents' sexual activity and contraceptive use by

adolescents. They reported that in all the four countries, unmarried adolescents who reported low parental monitoring were at increased risk of engaging in sexual intercourse in the year preceding the survey. Females from three of the countries (except Malawi) were more likely than males (all countries) to report premarital sex (odds ratios: 6.9-7.7 [females] and 2.4–5.4 [males] respectively) (Biddlecom et al., 2009). The study also revealed that Ghanaian adolescents who reported low parental or parental figure monitoring were 4 to 7 times more likely to have premarital sexual intercourse than their counterparts whose parents exercised higher monitoring and control.

2.5.3 Religiosity

Religion is a major social force that influences decision-making of individuals as well as families with regard to health risk behaviours (Gyimah et al., 2010).

Religiosity – the quality of being religious is a concept that has been variously defined. Religiosity is thus defined as a composite measure of religious affiliation, frequency of attendance at religious service, self-reports of the importance of religion (Rostosky et al., 2003; Rostosky et al., 2004); or as a measure of religious attitudes and behaviours (Hardy and Raffaelli, 2003). In other words, religiosity measures one's religious commitment, involvement, and identity (Hardy and Carlos, 2005). Family religiosity is discussed below.

2.5.3.1 Family religiosity, communication and sexual risk behaviour

The behaviour of the family as a unit directly and indirectly influences the attitudes and behaviours of young people. Family religiosity or religious involvement has been widely investigated as a socio-cultural factor associated with health behaviours and outcomes (Gillum

and Holt, 2010). Various studies have demonstrated that family religious activities and parental beliefs are protective factors against risky behaviours during adolescence (Hair et al., 2009). Researchers (including Manlove et al., 2008; Haglund and Fehring, 2010) maintain that higher levels of family religiosity, including parents' beliefs, prayer and religious service practices, and frequency of family participation in religious activities encourage young people to abstain from sexual initiation, early age at sexual intercourse and multiple sexual partners.

Additionally, research has shown that young people from more religious families tend to talk more with mothers about sexual topics than those from less religious families (Jaccard et al.). In one research, it was also observed that participant who were more religious reported receiving more messages about inappropriateness of premarital sex (Kim and Ward, 2007).

In spite of the protective nature of family religiosity, some researchers argue that:

“religious sexual values are presently not as clearly expressed in formal religions as in the past, and even when they are expressed, younger persons do not hold to the tenets of their faith on human sexuality as compared to members of older generations” (Haglund and Fehring, 2010).

Although about 95% of the Ghanaians populace profess to one religion or the other (GSS et al., 2009a), literature is virtually silent on studies that explored both family and child religiosity, and how these constructs influence parent-child communication and sexual risk behaviour of young people. Therefore in the present study, the researcher will examine the extent to which religiosity influences parental sexual communication and sexual risk behaviour among young people in Ghana.

2.5.4 Family connectedness and sexual behaviour

Parent-child connectedness is one of the most important family factors that strengthen the resilience of young people to high risk behaviours. Family connectedness has been widely examined in relation to sexual risk behaviour among young people (Henrich et al., 2006). Whereas high family connectedness is protective, low connectedness is a risk factor for risky sexual behaviour (Resnick et al., 1997; Markham et al., 2003)

Previous studies have found that young people who report higher levels of connectedness with parents are more likely to initiate sexual intercourse at an older age (Miller et al., 1998a); and those who are sexually active report lower rates of unprotected sexual intercourse (Crosby et al., 2001; Hutchinson et al., 2003; Slap et al., 2003) and engage in sexual intercourse with fewer partners (Crosby et al., 2001).

In a survey of urban adolescents in alternative high schools in Houston, Texas, USA, to determine the relationship between family connectedness and sexual risk-taking Markham and colleagues (2003) found that higher perceived family connectedness was negatively correlated with the likelihood of ever initiated sexual intercourse, recent unprotected sexual activity and having been involved in pregnancy. Females who reported higher perceived family connectedness were found to have reduced odds of ever had sex or having initiated sex before age 13 years compared with their male counterparts. In terms of pregnancy, females who perceived to be highly connected with their families had increased odds of having been involved in a pregnancy compared to males.

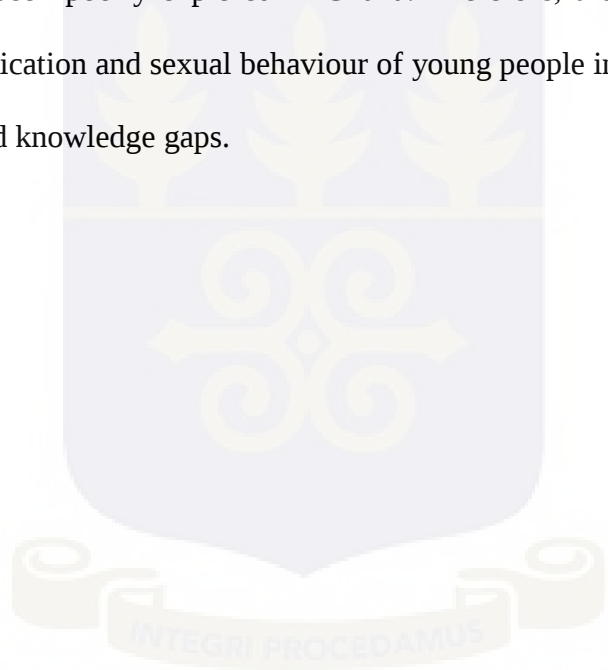
Using data from the Add Health study in USA, Sieving and colleagues (2000) examined the relationship between mother-child connectedness and adolescent sexual debut and found that high mother-child connectedness predicted later onset of sexual activity for younger adolescents but not older adolescents. Their investigations also revealed that higher mother-child connectedness significantly delayed first sexual intercourse among older boys and not girls.

2.5.4.1 *African studies on parent-child connectedness*

While the above findings are true of the developed world, very few studies in Africa have assessed the influence of connectedness on sexual communication and on sexual behaviour of young people. In one such studies, Slap and colleagues (2003) examined sexual behaviour of adolescents in Nigeria in the context of family structure (polygamous or monogamous) and its association with sexual activity among Nigerian students. They found that lower sense of connectedness to parents is associated with sexual activity. In Ghana, Kumi-Kyeremeh et al. (2007) explored the influence of social connectedness, communication and monitoring on adolescent sexual activity, and reported that adolescents demonstrated higher levels of connectedness to family, adults, friends, schools and religious groups. Their study however failed to address how family connectedness is associated with sexual behaviour of young people unlike those undertaken in the USA (such as Resnick et al., 1997; Sieving et al., 2000; Crosby et al., 2001; Hutchinson et al., 2003; Markham et al., 2003; Henrich et al., 2006).

2.6.0 Summary

This chapter explored literature relating to parent-child sexual communication and young people sexual and reproductive health in general. A substantial proportion of the literature surveyed relate to researches and reviews that were conducted in the developed world, mainly in the USA. Some knowledge gaps were detected. While some of the key issues studied produced consistent results, others were mixed; for example, influence of frequency of PCSC on sexual behaviour. Of greater significance is the fact that parent-child sexual communication has been poorly explored in Ghana. Therefore, the study seeks to examine parent-child communication and sexual behaviour of young people in the Ghanaian context so as to fill the identified knowledge gaps.



CHAPTER THREE

3.0 METHODOLOGY

This chapter is devoted to the methodology of the study. It presents detailed description of the study area, study design, study population and participants, sample size and sampling procedure, community entry procedures, data collection techniques, training of field research assistants, confidentiality, ethical considerations and data sources. Information about the study area – the geography, history, demography, socio-cultural, health and health care provision were extracted from detailed analysis report on Brong Ahafo region, as part of the 2000 population and housing census (GSS, 2005), and the Brong Ahafo Regional Directorate's Half Year Performance Review Report for 2009 (Ghana Health Service, 2009).

3.1.0 The study area

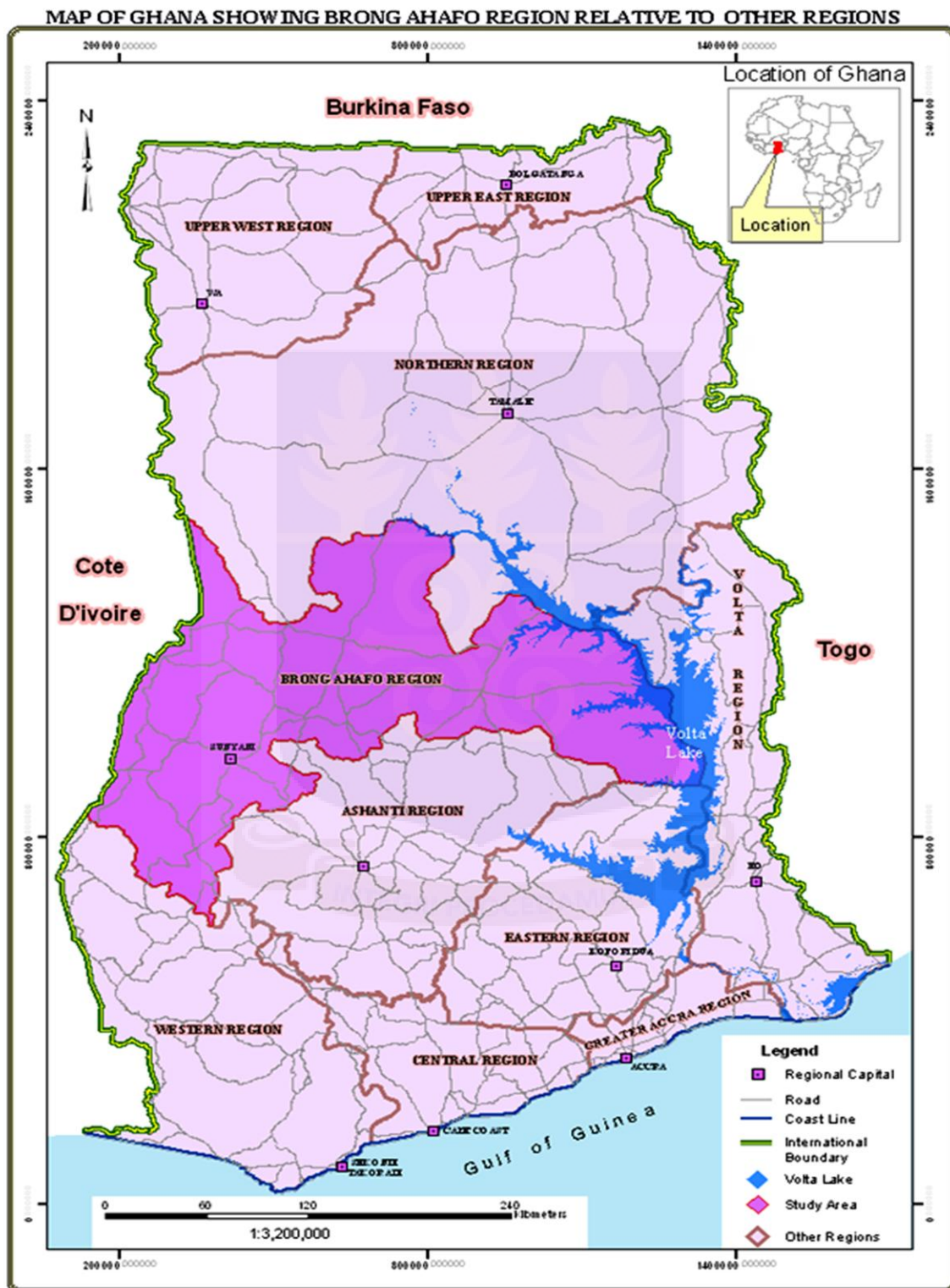
This study was conducted in the Brong Ahafo region, the second largest of the 10 regions in Ghana in terms of landmass. The region covers an area of 39,557 square kilometres, about 16.6% of total surface area of the country. It is the fourth most urbanized area (37.4%) in Ghana, coming after Greater Accra (87.7%), Ashanti (51%) and Central (37.5%) regions.

3.1.1 Location of the region

The region is located at the centre of the country, and it lies within longitude 0°15"E to 3° W and latitude 8°45"N to 7°30"S. It shares boundaries with five other regions: the Northern region to the north, the Ashanti and Western regions to the south, the Volta Region to the east, and the Eastern region to the southeast. Also to the western frontier is La Cote d'Ivoire.

Figure 3.1 exhibits the map of Ghana showing the Brong Ahafo region.

Figure 3.1 Map of Ghana showing the Brong Ahafo region



Source: CERSGIS, 2011, University of Ghana, Legon

3.1.2 Origin and creation of the region

The Brong Ahafo Region was created on 4th April, 1959, by an Act of Parliament (the Brong Ahafo Region Act No. 18 of 1959). The Act defined the demarcations of the region to consist of the northern and the western parts of the then Ashanti Region, and included Prang and Yeji areas, which before the enactment of the Act formed part of the Northern Region.

3.1.3 Historical background

The Brong (Bono) and Ahafo states, covering the north and northwest of the present Ashanti Region were part of the Ashanti Empire until the British conquered the Empire in 1900.

The Brong Kingdom with its capital at Bono Manso grew to become a powerful kingdom under the reign of Nana Akumfi Ameyaw I (1328-63). Oral tradition has it that nearly all the different Akan groups trace their origins to Bono after migrating from the “north”. The Asantes, Fantes, Denkyira and other Akan people later migrated to their present locations. In 1723, the Ashantis, under Nana Opoku Ware I, defeated Bono, and the capital Bono Manso was destroyed. The capital was thereafter moved to Techiman (Takyiman).

When the Ashanti Confederacy was restored in 1935 by the British administration, the Brong and Ahafo states came under the Asantes, though most of them were not happy. In 1948, Nana Akumfi Ameyaw III, the paramount chief of Techiman led Techiman to secede from the Ashanti Confederacy. The secession was supported by other Bono states, which eventually led to the formation of a dynamic Brong political movement known as the Brong Kyempem Federation in 1951 at Dormaa Ahenkro. The main objective of the movement was to struggle for separate traditional council and a separate region for the Brong Ahafo states. In March

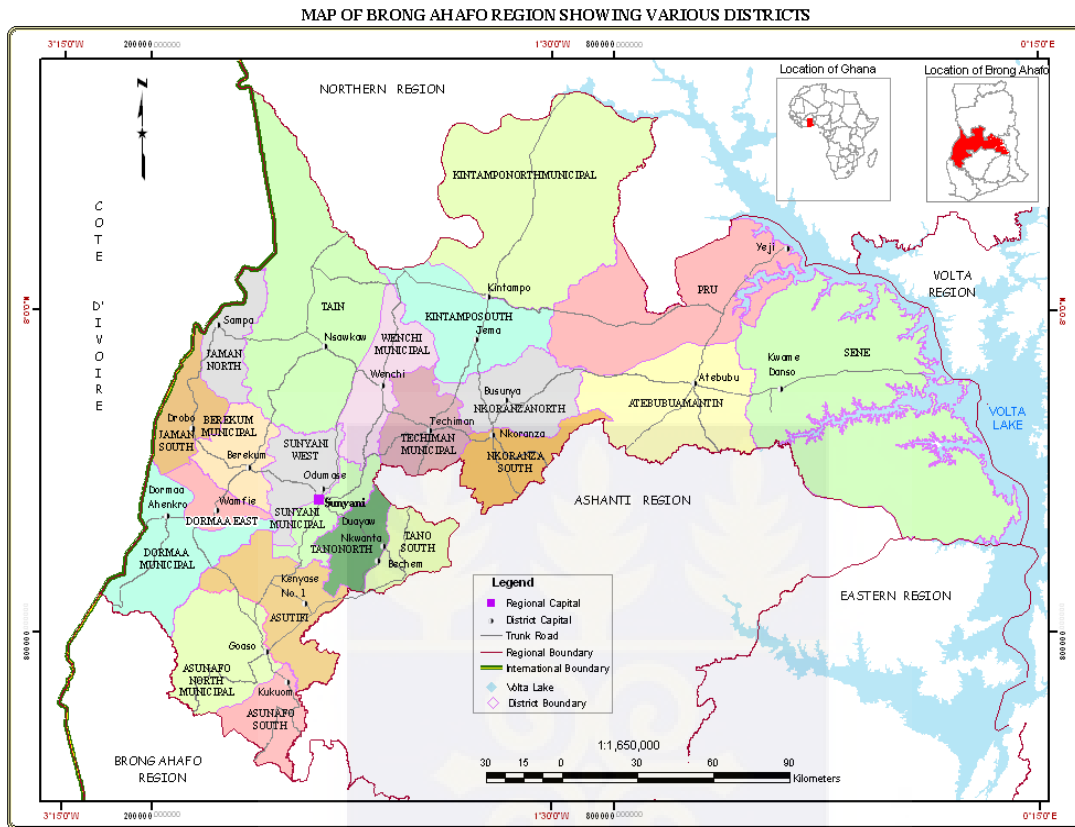
1955, the Prime Minister informed the National Assembly of the possibility of setting up the Brong Kyempem Council to fulfil the desires of the Brongs, and also the establishment of two administrative regions for the Ashanti. The desires of the Brongs came to fruition when the Brong Ahafo Bill was passed under a certificate of urgency in March 1959. The Brong Ahafo Region Act was enacted after receiving the Governor General's assent.

3.1.4 Political administration

The Brong Ahafo region has 22 administrative districts, which are run by Municipal/District Assemblies, and are headed by Municipal/District Chief Executives (M/DCEs). Sunyani is the regional capital and the administrative headquarters of the region. The political head of the region is the Regional Minister, who is the official government representative in the region. Figure 3.2 displays the map of Brong Ahafo region showing the various administrative districts.

3.1.5 Climate and vegetation

The region has a tropical climate with an average temperature of 23.9°C (75°F). There is double maximum rainfall pattern, which ranges from an average of 1000 to 1400 millimetres in northern and southern parts respectively. The region also has two main types of vegetation, namely the moist semi-deciduous forest, mostly found in the southern and south-western parts; and the guinea savannah woodland, predominantly found in northern and north-eastern parts of the region. Economic activities in the region are influenced by these vegetation types.

Figure 3.2 Map of Brong Ahafo showing administrative districts

Source: CERSGIS, 2011, University of Ghana, Legon

3.1.6 Socio-demographic characteristics

The region has a population of 2,282,128 and it is the sixth most populous region in the country, representing about 9.4% of the population of Ghana (GSS, 2011). It has a sex ratio of 104 males to 100 females, and an annual growth rate of 2.2%. Young people age 10 years to 24 years are about 709,742 (31.1% of the total population). The total fertility rate for the region is 4.2 live births per woman, which is slightly higher than the national level of 4.0. The mean number of children ever born in the region is 5.8. The population of the region is largely rural, with urban proportion of 37.4%.

3.1.7 Social characteristics

The Akans constitute the predominant ethnic group in the region. Of the Akans, three out of every five are Brongs. The level of illiteracy (42.4%) in the region is higher than the national average, with more females being illiterates than males. Christianity is the dominant religion, constituting over 70% of the population.

3.1.8 Health infrastructure and healthcare services

The region has 27 hospitals including the regional hospital; 51 health centres; 101 clinics and 35 private maternity homes. In addition, there are over 304 Community-based Health Planning Services (CHPS) zones, of which 74 (about 25%) are functional (51 with compounds and 23 without compounds). Health services are provided by the Ghana Health Service in collaboration with the Christian Health Association of Ghana, Non-governmental organizations, private individuals and other parastatal organizations.

3.1.9 Economic activities

The main occupation of the workforce of the region is agriculture and related work which constitute about 66.4% for both sexes. The northern part of the region lying in the savannah zone is a major grain and tuber producing centre, while the forest zone is a major cocoa and timber producing area. Other cash crops grown in the forest area are coffee, rubber and tobacco. The main food crops are maize, cassava, plantain, yam, cocoyam, rice and tomatoes.

In addition to agriculture, many others engage in commerce and transportation. The region is known as a major centre for commercial activities in the country. For instance, the region has major market centres located in Kintampo, Sunyani, Atebubu, Wenchi, Nkronza, Yeji as well

as Techiman, which is the largest market in the country. Furthermore, mining activities go on in the region, and recently the construction of the Bui hydro electric dam. These activities attract people from all walks of life. The influx of people is accompanied by social vices such as prostitution and high risk sexual activity. Consequently, the youth in the region, especially females are exposed to higher sexual risks. Quite apart from these, there are major trunk roads linking northern Ghana and other countries in the sub-region, such as Burkina Faso, Mali and Niger. Techiman and Kintampo are the major stopover towns, especially for haulage vehicles.

3.2.0 Study Design

The study design was cross-sectional one involving parent and their own children (young people) aged 10 years to 24 years. Both young people and their parents were selected from households and interviewed on sexual communication issues and young people sexual behaviour patterns.

3.2.1 Study Population

The study population was young people aged 10 years to 24 years and their parents in the Brong Ahafo region. However, the accessible population was all parent-child pairs resident within the selected enumeration areas.

3.2.2 Sample size calculation

The sample size was determined using the formula:

$$N = \frac{(z_{1-\alpha/2})^2 p(1-p)}{d^2} \times Deff$$

Where: **N** = required sample size

$z_{1-\alpha/2}$ = confidence level at 95% (standard value of 1.96)

p = estimated prevalence of parent-child sexual communication

d = margin of error

Deff = Design effect¹¹

The sample size was calculated with the following parameters:

Prevalence of parent-child sexual communication (p) was unknown¹², due to lack of appropriate information on sexual discussion from previous related studies in the study area or from any of the earlier studies in Ghana. Thus an estimated parent-child sexual communication prevalence of 50% was used as recommended by Lind et al. (2005). Furthermore, a 95% confidence level (z) and a margin of error (d) of 5% were assumed. Lastly, a design effect (Deff) “default” value¹³ of 2.0 was used in conformity with previous studies (Milligan et al., 2004; Birhanu et al., 2010). This was necessary because under cluster

¹¹ Design effect is the ratio of the actual variance of a cluster sample to the variance of a simple random sample of the same elements (Rowe et al., 2002). It is a phenomenon caused by cluster sampling, which increases the sampling error or imprecision.

¹² In the absence of an estimate of p from previous studies, a value of p = .50 or 50% is estimated as the prevalence, since the term $p(1-p)$ reaches its maximum when p = .50 (Lind et al., 2005).

¹³ In the absence of information on the magnitude of design effects from previous related studies, a “default” value of D = 2.0 is recommended, which adequately compensates for the use of cluster design (<http://www.fhi.org/NR/rdonlyres>).

sampling design there is usually loss of sampling efficiency, known as design effect, which increases the sampling error or reduces precision. Therefore a design effect value of 2 was applied to correct the loss of sampling efficiency in a bid to improve the variance of the parameter estimates, and consequently precision.

Thus the sample size for the study was calculated as follows:

$$N = \frac{1.96^2 \times 0.5(1 - 0.5)}{(0.05)^2} \times 2$$

$$N = \frac{3.8416 \times 0.25}{0.0025} \times 2$$

$$N = \frac{1.9208}{0.0025}$$

$$N = 768.32$$

$$N \approx \mathbf{768}$$

To account for contingencies such as non-response or recording errors, a 5% upward adjustment was made, resulting in an effective sample size of 806. The same sample size was used for parents since the study paired parents and their own children aged between 10 years and 24 years.

3.2.4 Inclusion criteria

The following were the inclusion criteria:

- Being a young person between the ages of 10 years and 24 years;
- Being either the biological parent or a parent figure¹⁴ and must have stayed continuously with the child for at least 2 years prior to the survey;
- Both parent and child pairs providing voluntary consent to participate in the study;
- Both parent and child pairs being resident within a selected enumeration area;
- Being of sound mind and able to understand and respond to questions posed; and
- Being able to express oneself in either the Twi or the English language.

3.2.5 Exclusion criteria

The study used the following criteria to classify participants as ineligible for interview:

- Young people on a visit to the enumeration area (EA) during the data collection period;
- Either parent or child or both reluctant to give consent;

3.2.6 Sampling procedures

Both quantitative and qualitative methods were used to gather data for the study. The sampling frame was the updated census EAs that were constructed for the 2000 Population and Housing Census. The EAs consisted of a section(s) of a town or a city, and in rural areas, one, two, or three adjoining smaller villages. Each EA was considered as a cluster, and was stratified into rural and urban components.

¹⁴ An adult who is not the biological parent, but whom young people describe as being like a mother or father to them, and with whom they stay with.

3.2.7 Sampling for the quantitative component

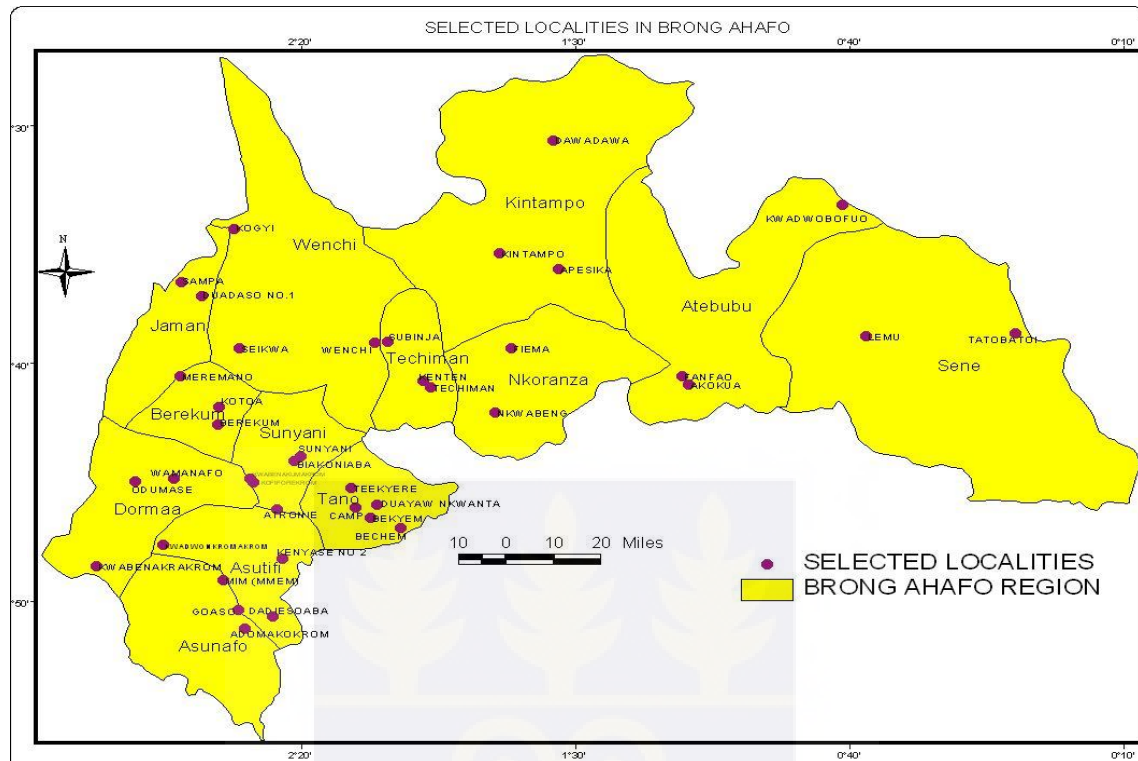
The quantitative component was a household-based survey. A minimum of fifteen (15) households per EA was determined in conformity with DHS standards as used in previous surveys (GSS et al., 2004). Thus based on the computed minimum sample size of 768, a minimum of 52 EAs were required.

A two-stage stratified sampling technique was used. In the first stage of sample selection, 52 EAs were chosen across all the 22 districts¹⁵ from a sampling frame consisting of about 2,673 EAs in the region through a systematic procedure with probability proportional to size. The measure of size was the number of households¹⁶ in the EA. The selection was stratified into rural and urban components, in the ratio of 28 (54%) rural and 24 (46%) urban to ensure representativeness since more than half of the region's population live in rural areas (GSS, 2002).

Figure 3.3 illustrates the various selected EAs on the map of Brong Ahafo region.

¹⁵ The EAs were demarcated for the 2000 population and housing census, based on the former 13 districts. The selection of EAs covers all the present 22 administrative districts.

¹⁶ "Household" consists of a person or a group of persons, who live together in the same house or compound, share the same housekeeping arrangements and are catered for as one unit (GSS, 2005).

Figure 3.3: Map of Brong Ahafo region showing selected EAs localities

Source: Ghana Statistical Service, 2010 Accra

The second stage entailed the selection of parent-child pairs from households through the modified random walk method¹⁷ (Magnani, 1997).

3.2.8 Modified random walk method for selecting households

Households were selected from housing units within the selected EAs. In each community, a random starting point and direction of travel were chosen as follows:

- In every EA, an EA map and its description was used to identify the boundaries of the EA;

¹⁷ The modified random walk method is used in the absence of household listing. It involves (1) random selection of a starting point (household) and a direction of travel within a sample cluster, (2) conducting an interview in the next nearest household, and (3) continuous selection of the next nearest household for interview until the target number of interviews has been obtained.

- The number of corners on the EA map were then labeled numerically; after which the investigator wrote the numbers on pieces of papers and folded them for selection;
- One of the survey team members randomly picks one of the folded papers;
- Whatever number was chosen was corresponded with the corner labels; thus the selected corner was used as the starting point for data gathering.

This procedure was used in about 80% of EAs. For the rest of the EAs that did not have definite corners, key land marks used to describe the EA (as indicated in the EA map), such as markets, church building, mosques, chief's palace or residence of a popular person in the community were used as the random starting point as appropriate.

Thereafter, another random selection was performed to determine whether to sample respondents from either odd-numbered or even-numbered houses. This was done by random selection of the numbers “1” or “2”, where 1 denoted odd-numbered houses and 2 represented even-numbered houses. Thus for a particular EA, if the outcome of the selection was 1, then all the respondents in that EA were selected from odd-numbered houses only.

3.2.9 Selection of parent-child pairs

Young people were the index respondents; and were used as leads for selecting parents. After determining a random starting point, the nearest even or odd-numbered house (EA specific) was entered and all young people aged between 10 years and 24 years were identified alongside their parents. In each house, only one household, that is, parent-child pair was interviewed. For this reason, all selected single-household houses with eligible young person automatically qualified for interviews. In houses with multiple households, however, one

household was randomly selected for interviews. Furthermore, in households with more than one eligible young person, one of them was randomly selected to participate in the study.

After the first house/household, the next nearest house/household was chosen for an interview. This process of selection continued until the target number of interviews in the EA was obtained. Households interviewed per EA ranged between 15 and 17.

3.2.10 Selection of mothers and fathers

Both mothers and fathers were involved in the study; but in each household, only one of them was interviewed. The sex of parent was selected consecutively irrespective of the sex of the child. The participation of fathers in the present study was to examine the relative involvement of both mothers and fathers in sexual communication.

3.2.11 Sampling for the qualitative component

In-depth interview (IDI) technique was used to elicit in-depth qualitative information from 26 parent-child participants. These respondents were selected randomly from 13 out of the 22 districts. They were selected from the same EAs in which quantitative sample was drawn. In each selected EA, one household was selected randomly, while the parent-child respondents were chosen via the method of selecting respondents for the quantitative study as described above. In each of the 13 selected districts, IDIs and survey interviews were conducted concurrently. IDI participants were not eligible for survey interviews and vice versa.

3.3.0 Data collection techniques

The interviewer-administered questionnaire method was employed to gather quantitative data from parent-child pairs, while an in-depth interview technique was used in collecting qualitative data for the study.

3.4.0 Study instruments

Structured questionnaires were used to obtain quantitative information from the study participants. Different questionnaires were used for parents and for young people. The questionnaire for young people (Appendix 2) solicited information on socio-demographics, sexual knowledge, attitude and practices, contraceptive knowledge and practices, parent-child sexual communication, parental monitoring, perception on parents' knowledge on sexual matters, perception of parental trustworthiness and availability/accessibility for sexual communication. Similarly, the parent questionnaire (Appendix 3) obtained information on family and parental socio-demographic characteristics, parent-child sexual communication, perceived sexual knowledge of parent, perceived availability/accessibility, perception of young people's sexual practices and contraception.

Additionally, interview guides (Appendices 4 and 5) were used to obtain qualitative data for the study. The interview guides explored pertinent issues in parent-child sexual communication and provided valuable insights that quantitative method could not well capture.

3.4.1 Data and information sources

Data for the study came from parent-child dyads. Separate questionnaires solicited seemingly similar information from parents and young people. Most of the questions were extracted from previous related studies conducted mainly in developed countries (Jaccard et al., 1996; Miller et al., 1998b; Dutra et al., 1999; Speizer et al., 2001; Rostosky et al., 2003; Guilamo-Ramos et al., 2006b; Guilamo-Ramos et al., 2008; Atienzo et al., 2009). Questions that were alien to the Ghanaian cultural standards were adapted to suit the country's cultural circumstances. In addition, some of the questions, especially on contraception were selected from standard DHS questionnaire (GSS et al., 2004; GSS et al., 2009a). Just a few questions were developed from literature by the researcher.

3.4.2 Type of data collected

The sets of questionnaires for data gathering were categorized into 3 sections: (a) demographic and background information (b) parent-child sexual communication (c) child sexual behaviour.

3.4.2.1 Section A: Demographic and background information

Demographic and background information included sex, age, marital status, ethnicity, educational level, present school status (young people), religiosity, living arrangements.

3.4.2.2 Section B: Parent-child sexual communication

This section covered information on the ability of parent and child to communicate with each other in general, as well as parent-child sexual communication in particular. Parent-child dyads were asked about general communication between them. A single item global

measure¹⁸ of discussion about sexual matters in general communication, the frequency and the circumstances leading to sexual communication initiation were obtained. In addition, respondents (parent and child) were asked some questions pertaining to the communication process.

In addition, the section assessed perceived parental sexual knowledge, trustworthiness and availability (young people only). Furthermore, the section examined parent-child communication on specific sexual topics including physical/sexual development; menstruation (girls) /wet dreams (boys), masturbation, sexually transmitted diseases, HIV/AIDS, sexual abstinence, condoms/other contraceptives, pregnancy, abortion, reproduction, sexual pressures, choosing partners, consequences of premarital sex, and homosexuality. Lastly, parents were asked to rate their own knowledge and understanding of these sexual topics on a 5-point Likert scale ranging from 1 = *nil* to 5 = *thorough*.

3.4.2.3 *Section C: Young people's sexual behaviour and contraceptive practices*

The study obtained information from the perspectives of both parents and young people on young people's sexual behaviour and contraception. Information included young people's past and present sexual relationships, sexual partnerships, engagement in sexual intercourse, age at first sexual intercourse and frequency of sexual intercourse. With regards to contraceptive use, young people were asked about contraception at first sexual intercourse, method used, reasons for use or non use of contraception, frequency of contraceptive use in subsequent sexual activities, awareness of family planning and methods known, potential family planning

¹⁸ A measure that seeks general information regarding sexual communication.

clients and barriers to contraceptive use. Information was also obtained about pregnancy experiences, age at pregnancy and abortion.

3.4.2.4 *Section D: Family Socioeconomic status (parents only)*

Parents were asked whether they owned selected durable household assets, have access to selected utilities, and sanitation facility. This assessment was conducted to be able to categorize families into socioeconomic groups

3.5.0 Pre-data collection activities

The following activities were undertaken prior to actual field data collection to ensure validity and reliability of data.

3.5.1 Translation of questionnaire

The sets of questionnaires and the interview guides were translated from English into the Twi language by a linguistics expert from the Linguistics Department of the University of Ghana. A back translation of the Twi version into English was performed independently by another expert to verify the accuracy of the Twi translation. Amendments were made as necessary. The translation was to ensure that the right English and health terminologies were appropriately translated into the Twi language for comprehension in order to elicit right responses from respondents.

3.5.2 Training of field research assistants

A four-day intensive training was organized for field research assistants. All the research assistants were university graduates aged between 23 years and 24 years. The training

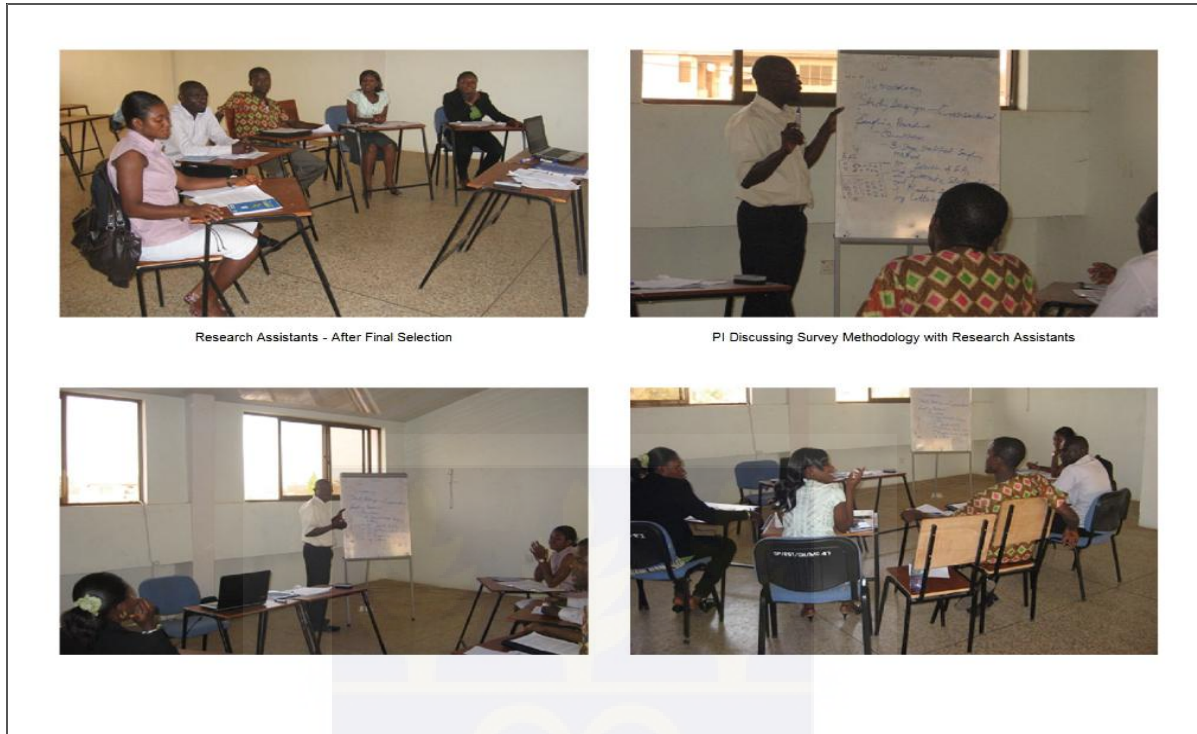
involved systematic and comprehensive explanation of the research process through didactic presentation and extensive discussions. The trainees were taken through:

1. The objectives of the study;
2. Definition of key concepts like *adolescent, youth, young people, and sexuality*;
3. Overview of adolescence, adolescent health, young people sexuality, parent-child sexual communications, cultural sensitivities in talking about sexuality across sexes and generations;
4. The various sampling methods used at different stages;
5. Courtesies in interviewing and data collection in communities, as well as the importance of honesty in obtaining and recording responses accurately;
6. Review of the study instruments and interviewing techniques. Role plays and demonstrations were performed using sample study instruments;
7. Reading EA maps;
8. Mock interviews on the sets of questionnaires and immediate feedback on interviewer performances; and
9. How to obtain informed consent from the study participants.

The training also enabled the research assistants to acquaint themselves with field operations techniques. In all, seven people were trained, and six, including one supervisor, were selected based on performance during the training, field practice and fluency in the Twi language.

Figure 3.4 shows photographs of the investigator and research assistants during the training.

Figure 3.4: Photographs of investigator and research assistants during training



Source: Investigator

3.5.3 Pre-testing

The sets of instruments were pre-tested in the Brong Ahafo region among 20 parent-child pairs. The pre-test was conducted in two EAs (one rural and one urban) that were not part of those sampled for the main study. Feedback from the pre-test indicated the need to modify the questionnaires for readability, comprehension as well logical flow. A few new questions were added on.

3.6.0 Confidentiality

Parent-child respondents in each household were interviewed separately in the absence of the other (i.e. parents were not present when a young person was interviewed and vice versa). This ensured confidentiality, openness and truthful response. As a further confidentiality

measure parents were generally interviewed first, followed by the index child. This approach was used to reassure young people that interviewer-parent interactions would be devoid of possible information divulge. This procedure enabled young people to freely discuss vital issues about themselves. Parents' interviews were normally conducted within the house, but young people were interviewed in a convenient place around the house such as open veranda/porch, under a tree around the house. This was done to avoid parents or other people present in the house to eavesdrop the conversation with young people, and also to ensure that young people did not feel intimidated to talk about their sexual lives. Figure 3.5 presents snapshots of confidential interviews with parents and young people.

Figure 3.5: Confidential interviews with parents and young people



Source: Investigator

Additionally, the separate confidential interviews ensured privacy, and removed any prejudices and judgmental tendencies on the part of parents in particular. It also allowed young people to provide candid responses; particularly on sensitive questions that sought highly personal and confidential information relating to risky sexual behaviours (*e.g. ever had sexual intercourse, number of lifetime sexual partners and sexual intercourse within past 3 months*).

3.7.0 Ethical Considerations

The following measures were taken to ensure that study participants' safety was guaranteed and rights protected:

1. Ethical clearance was obtained from the Ghana Health Service Ethics Review Committee (Identification Number GHS-ERC 22/3/09) (See Appendix 6);
2. Informed consent was obtained from all participants after the details and objectives of the study explained to them. For those who were literate, written informed consent (Appendix 7) was sought. For illiterate participants, the informed consent was translated into and read to them in Twi and verbal consent was obtained thereafter. Before obtaining consent, it was stressed that participation in the study was absolutely voluntary; and that participants were free to opt out anytime. For young people aged 10 years to 17 years (minor), proxy consent was sought from their parents. In addition, minors' own assent was obtained before they participated in the study;
3. Participants were assured of privacy and confidentiality; that any information obtained from them was confidential, and will only be used for the purposes of this research. Both participants were given unique identity numbers, and no name was linked to any

- information. Processed questionnaires were stored in a safe place under lock and key; and will not be accessible to unauthorized persons;
4. Accurate research data (both raw and processed) and records including reports, procedures followed, approvals granted during the research process as well as any materials related to the research were saved in soft and hard copy forms. Soft copies were saved on the Department's main computer and on the investigator's laptop as a portable document file (PDF) to ensure that they were protected from tempering and fabrication and access by unauthorized persons. All file copies were stored on compact disks (CDs) and copies were kept at the Department while additional copies were saved on the investigator's external hard drive.

3.8.0 Community entry procedures

Permission was sought from the Brong Ahafo Regional Health Directorate. At the community/EA level, authorization to conduct interviews with participants was sought through personal contact with the Chiefs and Elders or Assemblymen/women or both. In the absence of these leaders, the Unit Committee Chairman/Chairperson of a locality or EA was contacted for permission. In a few communities, the field visit coincided with a community durbar or social gathering, which offered the research team the opportunity to meet a cross-section of community members. In all the various meetings, the PI gave an overview of the study. Themes such as the purpose and objectives of the study, sampling methodology, voluntary participation, risks and benefits, and confidentiality issues were clearly explained and emphasized. Questions and concerns raised by the community leaders or members were satisfactorily addressed. No community refused to participate in the study. Figure 3.6 shows snapshots of various meetings with some rural community leaders.

Figure 3.6: Meeting with community leaders

Source: Investigator

3.9.0 Actual data collection

Data for the study were collected from parent-child dyads in the Brong Ahafo region, from January to March, 2010. The field team visited 52 selected EAs [comprising 28 (54%) rural and 24 (46%) urban], distributed across 47 localities. Both quantitative and qualitative data were gathered concurrently. For the quantitative component, 840 parent-child pairs were interviewed. Seventeen (17) parent-child pairs were excluded for the one of the following reasons; 7 refusals (including 3 parents and 4 young people), 6 young people had stayed with their parents for less than 2 years, and 4 provided incomplete information. Thus interviews were completed for 823 parent-child pairs. In addition,

qualitative data were obtained from 26 participants, comprising 13 parents (8 mothers and 5 fathers), and 13 young people (7 young girls and 6 young boys).

3.9.1 Field operational strategy

The field team moved together from one EA/community to the other. In each EA/community the team completed all interviews before proceeding to the next. However, five EAs/communities had to be visited more than once before the required sample size for those EAs was achieved for reasons such as difficulties in recruiting fathers and logistical constraints.

3.9.2 Duration of interviews

The duration for parent interviews ranged between 25 minutes to 45 minutes; while young people interviews lasted between 30 minutes to one hour. In the case of the in-depth interviews the duration varied between 45 minutes to one hour 30 minutes for parents and young people alike.

3.10.0 Study variables

The sets of questionnaires captured a number of variables directly. These included the demographic information of both parents and young people, the outcome variables, sexual communication, age at communication on various sexual topics. Other important variable were computed using a number of related questions. The dependent and some computed independent variables are described below.

3.10.1 Dependent variables

Young people's reports of sexual communication, and involvement in six sexual behaviour outcomes were used as the dependent variables. These are:

1. Frequency of parent sexual communication
2. Ever had sexual intercourse
3. Age at first sexual intercourse
4. Lifetime number of sexual partners
5. Condom use at first sexual intercourse
6. Contraceptive use at last sexual intercourse, and
7. Ever been pregnant or made someone pregnant

Participants were asked to indicate yes/no; where *yes* = 1 and *no* = 0; to questions on sexual communication, sexual intercourse, condom use at first sexual intercourse and pregnancy, whereas age at sexual initiation, lifetime number of sexual partners, number of sexual partners 3 months, and 12 months preceding the survey were open-ended. Timing of sexual communication was dichotomized as on-time and off-time discussion. Further discussion on how the variable is dichotomized is presented in sub-session 3.10.2.4.

3.10.2 Independent variables

The independent variables for both parent and young people, such as age, sex, place of residence, family structure and educational level were directly measured in the questionnaires. Other variables were derived from related questions. These include family socioeconomic status (SES), timing of communication, religiosity, parental availability/accessibility, parental sexual knowledge, trustworthiness, frequency of communication, family connectedness,

openness, permissiveness, process of communication were computed using a number of related questions. These variables are described below.

3.10.2.1 Computation of socioeconomic status index score

Socioeconomic status (SES) index was derived by performing a principal component analysis (PCA) using variables that captured living standards such as data on household ownership of durable assets (e.g. radio, TV, car), access to utilities and infrastructure (e.g. electricity, source of water, sanitary facilities), housing characteristics, ownership of livestock. PCA factor scores or weights were generated for the various variables employed in the model. Using the Filmer and Pritchett (2001) approach¹⁹, the factor scores were then used to categorize households into 3 SES groups (poor, middle and rich). The final products from these analyses were used to perform further analyses, especially at the bivariate and multivariate levels.

3.10.2.2 Perceived parent sexual knowledge

The survey assessed parents' self-rated knowledge on 20 sexual topics, namely *physical development, puberty, menstruation (girls)/wet dreams (boys), sexual feelings, masturbation, sexually transmitted diseases, HIV/AIDS, abstinence, condoms, other contraceptives, pregnancy, abortion, reproduction, consequences of premarital sex, sexual partner, sexual pressure, safer sex, substance use, when to start sexual intercourse and homosexuality*. The topics were preceded with the statement "How would you rate your knowledge and understanding of the following sexual topics", with responses ranging from 0 = *not at all* to 4 = *thorough*. The responses were summed to create a composite knowledge score, which

¹⁹ Filmer and Pritchett (2001) classified households using the 40-40-20 split; where the lowest 40% of households were categorized as 'poor', the next 40% as 'middle' and the highest 20% as 'rich'.

ranged from 0 to 80, with higher scores signifying higher sexual knowledge. The 20 items had excellent internally correlation with an alpha coefficient of .96.

3.10.2.3 Process of communication

Two constructs “openness of communication” and “easiness of communication” were used to assess the process of sexual communication between parents and young peoples. The process of sexual communication was assessed from the perspectives of both parents and young people.

3.10.2.3.1 Openness of communication between parent and child (openness-child)

Six items were used to measure the openness of communication:

1. Communication between my mother/father and I on sexual matters is mutually interactive;
2. My mother/father and I talk openly and freely about sexual topics;
3. I can freely ask my mother/father anything I really want to know regarding sexual issues;
4. My mother/father knows how to talk to me about sexual matters;
5. When my mother/father talks to me about sexual topics, she/he warns or threatens me about the consequences; and
6. My mother/father tolerates my views when he/she talks to me about sexual issues.

All the items were scored on a 5-point Likert scale which ranged from 1 = *strongly disagree* to 5 = *strongly agree*. The scores for these items were added up. Negative items were reverse-scored so that higher score indicated more openness in communication. The Cronbach’s alpha coefficient for the 6 items was .79.

3. 10.2.3.2 *Easiness of communication between parent and child (easiness-child)*

Responses to 5 items scored on a 5-point Likert scale which ranged from 1 = *strongly disagree* to 5 = *strongly agree* were used to evaluate the easiness of communication from the child's viewpoint. The items included:

1. My mother/father does not feel confident when discussing sexual issues with me;
2. My mother/father is not comfortable when discussing sexual issues with me;
3. My mother/father is reluctant to talk to me about sexual matters;
4. My mother/father thinks talking to me about sexual issues will spoil me (make me promiscuous);
5. My mother/father feels shy to talk to me about sexual matters.

These items were summed and possible scores ranged from 5 to 25. Negatively phrased items were reverse scored so that higher overall scores indicated higher level of easiness in communication. The alpha coefficient for these 5 items was .84

3. 10.2.4 **Timing of parent-child sexual communications**

Timing was defined as the age at which the young person first had discussion on sexual matters with parents. For each of the 20 sexual topics, respondents were asked an open-ended question on the age at which parents first discussed each topic with young people. The age at first discussion of sexual abstinence was used as a proxy for sexual intercourse discussion. This was used to generate a timing variable by comparing the age of abstinence discussion with the age of first sexual intercourse. The study adopted the technique developed by (Clawson & Reese-Weber, 2003; Atienzo et al. 2009) and dichotomized the timing variable as on-time and off-time discussion. Whereas on-time was defined as sexual discussions

occurring before the young person first initiated sexual intercourse, and off-time referred to sexual discussions after initiation of sexual intercourse.

Thus abstinence discussion that occurred prior to the first time the young person had sexual intercourse was classified as on-time, and was coded as 1. Similarly, abstinence discussion that happened after child had initiated sexual intercourse was categorized as off-time, and was coded 0. Young people who reported the same age of first abstinence discussion as the age at sexual initiation; and those who reported that their parents had never talked to them about sexual abstinence were classified as off-time discussion. Again, all those who reported sexual abstinence discussion but had not yet initiated sexual intercourse were considered as having on-time discussion.

3. 10.2.5 Frequency of parent-child sexual communication – perspective of child

Young people were asked to indicate whether their parents have talked to them about the 20 specific sexual topics (indicated above). These items were measured on a 4-point Likert scale 0 = *never* to 3 = *often*. Young people were thus asked to indicate the extent to which both their mothers and fathers have discussed each of the 20 sexual topics with them. The responses to these items were summed and the result constituted frequency of communication score; which ranged from 0 to 60, with higher scores indicating higher frequency (parents have had more discussions). The items were internally reliable with alpha coefficients of .88 for discussion with mothers and .85 for discussion with fathers.

3.10.2.6 Frequency of parent-child sexual communication (frequency parent)

The same 20 sexual topics were used to assess the frequency of sexual communication from parent's perspectives. Parents were asked to report how much they have talked to their children, if ever; about the 20 sexual topics. A 4-point Likert scale 0 = *never* to 3 = *often* was used and the scores were summed to generate frequency scores for parents. Total score ranged from 0 to 60 and higher score signified parents have had more discussion with the child. The scale highly correlated internally, with an alpha reliability coefficient of .89.

3. 10.2.7 Family religiosity

Family religiosity was measured with four items as discussed above but phrased appropriately to assess family religious context. The items were:

1. Frequency of attendance at religious services;
2. Frequency of participation in religious group activities;
3. Frequency of family praying together; and
4. Importance of religion to the family.

The items were scored on a four-point Likert scale as described above. The alpha coefficient for these items was .65.

3. 10.2.8 Parental discipline

Parental discipline was measured with a single (yes/no) item that asked whether parents enforce restrictions on their children. Those who answered in the affirmative were considered as disciplinarian parents.

3. 10.2.9 Parent trustworthiness

Parent trustworthiness was measured from parents' perspectives with five items. All the items were measured on a 5-point Likert scale, 1 = *strongly disagree* to 5 = *strongly agree*.

The items were:

1. I think my child trusts me when we talk about sexual matters;
2. I believe I give good advice on sexuality to my child;
3. The advice I give to my child about sexual issues answers his/her sexual concerns;
4. My child comes to me for help when he/she needs good advice on sexual issues
5. I keep my promises to my child when we talk

The five items were summed and possible scores ranged from 5 to 25, with higher scores suggesting higher trust. The alpha coefficient for the five items was .70.

3. 10.2.10 Parent availability

Parental availability was assessed with three items that sought the views of parents using a 5-point Likert scale which ranged from 1 = *strongly disagree* to 5 = *strongly agree*.

The items were:

1. It is difficult for me to find time to talk about sexuality issues with my child;
2. I find myself too busy when my child wants to talk with me about things relating to sexuality;
3. I have trouble finding time to talk with my child about sexuality issues.

The items were summed and scores ranged from 5 to 15, with higher score implying parent is highly available. The scale yielded excellent internal reliability with alpha coefficients of .92.

3. 10.2.11 Parent permissiveness

A composite score comprising three items that were scored on a three-point Likert scale, 1= *disapprove* to 3= *approve* were used to assess parent permissiveness. The items included:

1. Would you approve of your child engaging in sexual activity before marriage?
2. Would you allow your child to use condoms if she/he is sexually active?
3. Would you allow your child to use contraceptives if she/he is sexually active?

The three items were summed and possible scores ranged from 3 to 9, in which higher scores signified more permissive.

3.11.0 Data entry and management

The descriptions below apply only to the quantitative data obtained from both parents and young people.

3.11.1 Data capture

The quantitative data were captured using EpiData software version 3.1. Data entry screens for parent and young people questionnaires were designed with appropriate variable definitions, consistency checks and skipping patterns. These parameters were built in to avoid out-of-range responses to minimize errors during the data entry process.

The investigator carefully edited and cleaned the two sets of questionnaires to eliminate inconsistent responses and recording irregularities. Additionally, all open-ended responses were thoroughly coded. Different code books for both parents and young people were developed for this exercise to ensure that responses from both respondents are not mixed up.

Thereafter, the data were doubly entered by trained data entry operators.

3.11.2 Data validation

The double entries were validated via field-by-field comparison using the data validation facility in EpiData to detect mismatches. Query reports were generated from the two data files. The Principal Investigator (PI) critically examined the query reports and identified the correct response to the various disparities using the questionnaires. Thereafter, the data entry operators corrected all the necessary discrepancies until the two sets of entries produced 100% entry accuracy before further processing.

The data were then exported from EpiData environment to Statistical Package for Social Sciences (SPSS²⁰) version 16 (SPSS, 2007). The investigator performed further cleaning and checks to ensure absolute data integrity. Some variables were re-coded and a few others were created from a number of related variables (see Section 3.9).

3.11.3 Data sets

The study used four sets of data collected from parent-child pairs across the Brong Ahafo region from January to March 2010. The first and second data sets were quantitative, obtained through a survey of 823 parent-child pairs. These data sets sought to provide quantitative evidence regarding parent-child sexual communication.

The third and fourth data sets documented qualitative views of 13 parent-child pairs on sexual communication through in-depth interviews. The qualitative information was triangulated with the quantitative information to increase the validity and reliability of the results.

²⁰ Since 2010, the name SPSS has been changed to IBM SPSS, but to prevent confusion, the original name SPSS is maintained in all discussions in this research.

During the data analysis, two quantitative data sets, that is, the separate survey data for young people and parents were merged.

The final quantitative data set (823) for analysis included some 33 (4%) young people who were married at the time of the survey, but were still staying with their parents. Their inclusion did not affect the objectives and findings of the study.

3.12.0 Data analysis

Statistical analyses were performed with SPSS software version 16 (SPSS, 2007). In all statistical procedures, an alpha of 0.05 was used to determine statistical significance, unless otherwise noted. Before the actual analysis, the following preliminary investigations were conducted to assess the distribution of the data and also to assess the reliability of the various sets of scales used to gather the data:

- The data were checked for outliers²¹ with key continuous variables by converting their raw scores into z-score. None of the cases was found to be different from others. In each of the variables, not less than 95% of the cases had absolute z-score value less than 1.96 (Field, 2009).
- Some important continuous variables such as age at sexual initiation, frequency of communication score (both parents and children), were assessed for normality of the distribution using Kolmogorov Smirnov test²². This was supported by visual inspection of the shape of the histograms (with normality plot) as well as the Normal

²¹ For a distribution to be free from outliers, 95% of the cases should have absolute z-score values less than 1.96, 5% (or less) with an absolute value greater than 1.96 and 1% (or less) with an absolute value greater than 2.58.

²² The Kolmogorov-Smirnov test checks whether the distribution deviates from a comparable normal distribution. *Note:* A non-significant result ($p > .05$) indicates the distribution of the sample is not significantly different from normal distribution; and if the test is significant ($p < .05$), then the distribution is significantly different from normal distribution (Field, 2009).

quantile-quantile (Q-Q) plots (Appendix 8 & 9). Where a plot fail to lie on the diagonal, further checks were made by comparing the mean score of the variable with its 5% trimmed mean to see if the two means differed. Substantial difference indicates non-normality (Pallant, 2010).

- The Cronbach's alpha (α) statistic – a measure of the reliability of a scale was calculated for groups of questions measuring various independent variables. These are reported in Sections 3.10.2 – 3.10.8. A Cronbach's alpha coefficient of .70 or higher is generally considered acceptable (DeVellis, 2003; Pallant, 2010).

3.12.1 Descriptive statistics

Frequency distributions summarized in Tables and charts were obtained for nominal and ordinal level variables. Measures of central tendency such as the mean and the median were calculated for selected interval and ratio level variables. The standard deviation was used to measure the spread of selected key variables, while the indices of skewness and kurtosis were checked to assess the symmetry and data peaking respectively.

3.12.2 Inferential statistics

Differences between categorical variables were examined using the Pearson's chi-square (χ^2) technique. For example, the χ^2 was employed to determine differences in reports of sexual communication among parents and young people by sex. The Pearson's correlation coefficient (r) was used to determine associations between selected continuous outcome variables, while the point-biserial²³ correlation (r_{pb}) coefficient was used to measure relationships between

²³ Appropriate correlation test between continuous variables and discrete dichotomous variables. The correlation coefficient is symbolized by r_{pb} .

discrete dichotomous variable and continuous variables. Furthermore, the independent samples *t*-test was used to compare mean sexual knowledge scores for males and females (parents only), religiosity, process, content and frequency of communication.

Finally, analysis of variance (ANOVA) technique was used to compare variability in mean scores among different groups. In all ANOVAs, preliminary evaluations were performed to ascertain whether there were violations of the ANOVA test assumptions of normality, independence and homogeneity of variance. In instances where the homogeneity assumption was broken, the Welch's *F*-statistic was used as the robust test for comparing differences in means. In all ANOVA procedures, post hoc investigations were carried out to determine differences in means among groups.

3.12.2.1 *Analysis of specific sexual topics*

Both parents and children were asked to indicate whether they had had discussion on any of the twenty (20) specific sexual topics. The topics were categorized under three themes in accordance with the procedure used by Atienzo et al. (2009), namely: (1) biological/developmental (2) sexual risk prevention or safety, and (3) experiencing sex. Table 4.5 lists the various sexual topics under each category. Direct comparisons of proportions of reports together with chi-square analyses were undertaken. The Chi-square analyses were conducted in sets of 20, to assess parent and child gender differences in reports of discussion on each of the 20 sexual topics. Due to the multiplicity of chi-square tests, the alpha level was

adjusted using the Bonferroni correction method²⁴. The alpha level was thus set at $p \leq 0.0025$ by dividing the conventional p -value of 0.05 by 20.

3.12.2.2 *Multivariate analysis*

Multivariate analysis involved hierarchical multiple linear regression and hierarchical multiple logistic regression techniques. These methods were used because they provided information on how much variation in the dependent variables was explained by the selective entrance of additional independent variables into the model. With these procedures, the effects of some socio-demographic independent variables such as *age, current school attendance and place of residence* known to predict the outcomes under investigation (Resnick et al., 1997; Rostosky et al., 2003; Blum and Mmari, 2004; Rew and Wong, 2006), were controlled for as covariates.

Hierarchical multiple linear regression procedure was used to determine predictors for continuous dependant variables, such as *age at sexual initiation* and *lifetime number of sexual partners*. On the other hand, hierarchical multiple logistic regression technique was performed on binary outcome variables to identify the factors associated with each of the sexual risk behaviours among young people. The binary variable included *parent sexual communication, ever engaged in sexual intercourse, condom at first sexual intercourse, contraceptive use during the past three months, and ever been pregnant/made someone pregnant*.

For all the logistic procedures, the Hosmer and Lemeshow goodness-of-fit statistic was used to assess how well the various final models fitted their respective data. Adjusted odds ratios

²⁴ A method developed by Carol Bonferroni (1892-1960), and is applied to reduce familywise error rate, that is, the probability of making a Type I error when ‘family of tests’ are conducted on the same dataset that seek to address the same issue.

(AORs) and their associated 95% confidence interval (CI) were used to assess the strength of these associations.

For each regression procedure, parametric assumptions of normality, linearity, homoscedasticity and outliers were evaluated through pre-analysis screening via “explore” procedure in SPSS, as well as examination of scatter plot of residuals against predicted depend variable scores (Tabachnick and Fidell, 2007). In one instance, the dependent variable (lifetime number of sexual partners) was found to be non-normally distributed, because the data was positively skewed. The variable was thus transformed (Appendix 10) by taking the logarithm of the raw scores to order to reduce skewness to improve normality as recommended by Tabachnick and Fidell (2007, p. 87).

In all linear and logistic regression procedures, separate analyses were performed for young boys and young girls on the various sexual behaviour measures. The purpose for stratifying the analyses by sex of young people was to determine whether the various communication measures under investigation influence young people’s sexual behaviours differently. Researchers (including Luster and Small, 1994; Karim et al., 2003; Landor et al., 2011) have previously utilized this approach and have found different factors to influence young boys and young girls’ sexual behaviours differently.

All the six sexual behaviour dependent variables were analyzed individually in line with previous studies (Hutchinson, 2002, p. 241; Clawson and Reese-Weber, 2003, p. 260; Karim et al., 2003, p. 18; Hutchinson and Montgomery, 2007, p. 698; Atienzo et al., 2009, p. 113), to determine which communication variable(s) predict these specific outcomes. In addition,

parental communication outcome variable was regressed against selected parental/family factors to determine the predictors for parental communication.

3.12.3 Qualitative data analyses

Qualitative data were manually analyzed thematically. All the audio-tape recorded IDIs were transcribed verbatim by the investigator. The data transcripts were read several times by the investigator. Recurring themes were extracted and later compared with field notes taken during the interviews to ensure that no relevant information was ignored. The qualitative evidence was used to add value to the quantitative findings.

3.13.0 Quality Control

The following quality control measures were put in place to ensure data quality and to assure validity and reliability of the information generated:

1. Before the commencement of field work, field research assistants were given a four-day comprehensive training to ensure that field operation procedures and interviewing techniques were standardized across the interviewers.
2. Whilst on the field, PI monitored interviewers unannounced to ensure that they adhered to field procedures such as having separate confidential interviews with both respondents and also to ensure that they visited only designated houses.
3. Regular meetings were held at the beginning of every week to discuss progress of work, shared best and appropriate practices and to map out strategies for field operations.

4. Quality control calls were made by the investigator to verify information recorded on selected completed questionnaires. In all, about 5% of the respondents were contacted through their cell phones for a short interview on selected aspects of the respective questionnaires to corroborate the information research assistants obtained from them.

3.14.0 Notes and interpretation of statistical terms

Classification indicates how well a logistic model is able to correctly classify cases into the respective categories of the outcome variable (e.g. *pregnant/not pregnant*).

Coefficient of determination (R^2) is the proportion of variance in one variable that is explained by a second variable. Mathematically, it is the Pearson correlation coefficient squared and it ranges from 0 to 1. In linear regression model, R^2 represents the proportion of variance in the dependent variable that is accounted for by the model.

Cook's distance is a measure of the overall influence of a case on a regression model. Cases with values greater than 1 are a potential problem (Tabachnick and Fidell, 2007).

Cox and Snell's R^2 is a version of *coefficient of determination* for logistic regression. It is statistically limited in that it is not able to reach its maximum value of 1.

Gabriel's test is a multiple comparison procedure performed to determine differences within categories when the sample sizes for the various categories are not very different from each other.

Homoscedasticity is an assumption that the variance in scores for a variable is the same at all values of the other variable. When the variances are very unequal, there is said to be *heteroscedasticity*.

Hosmer and Lemeshow Test is a goodness-of-fit test available in SPSS logistic regression procedure. It is used to evaluate how well the regression model performs over and above the constant-only model. A good fit is indicated by a non-significant p -value greater than 0.05 (Pallant, 2010).

Multicollinearity occurs when there is a strong correlation between two or more predictors (independent variables) in a regression model. The presence of multicollinearity may make the estimates of the model parameters (unstandardized coefficients) to be less reliable, limits the size of the R , and also makes it difficult for the model to discriminate between which of the highly correlated variables is important (Alin, 2010; Pallant, 2010).

Nagelkerke's R^2 is a version of *coefficient of determination* for logistic regression. It is a variation of Cox and Snell's R^2 which overcomes the problem that this statistics has of not being able to reach its maximum value of 1.

Tolerance is an indicator of how much of the variability a specified independent variable is not explained by the other independent variables in a regression model. It is generally expected to be greater than 0.1. Values less than 0.1 are an indication of possible multicollinearity.

CHAPTER FOUR

4.0 RESULTS

This chapter presents the study results. Various statistical procedures employed to analyse the data are shown. The chapter is organized into five sections as follows:

- 4.1.0 Background characteristics of study participants;
- 4.2.0 Parent-child sexual communication;
- 4.3.0 Determinants of parental sexual communication;
- 4.4.0 Sexual behaviours and contraceptive use among young people; and
- 4.5.0 Influence of sexual communication on young people's sexual behaviours.

4.1.0 Background characteristics of study participants

This section presents the descriptions of the socio-demographic characteristics of the study participants. Intergroup differences were assessed using chi-square analyses for categorical variables and *t*-test or analysis of variance (ANOVA) for continuous variables as appropriate.

4.1.1 Socio-demographic characteristics of study participants

Between January and March 2010, 840 pairs of parents and their children (young people aged 10 years to 24 years) participated in a household survey from systematically selected census enumeration areas (EAs) across the 22 districts in the Brong Ahafo region. Of the total sample, Seventeen (17) pairs of participants were excluded based on the following reasons: 7 refusals (3 parents and 4 young people), 6 had stayed together continuously for less the 2 years, and 4 pairs had incomplete information. Thus complete data were obtained for 823 parent-child pairs, yielding a response rate of 98%. The analyses in this chapter are based on the 823 parent-child pairs.

4.1.2 Distribution of the study participants

The study sample comprised 54.3% rural and 45.7% urban residents. The background characteristics of the participants, both parents and young people stratified by sex of respondents are presented in Tables 4.1 and 4.2.

4.1.3 Socio-demographic characteristics of parents

Table 4.1 provides socio-demographic information of the parent sample involved in the study. The sample was made up of 55.9% mothers and 44.1% fathers. The majority (77%) of parent respondents were married, with higher proportion (88.4%) being fathers, while substantially more mothers were either divorced or separated compared to fathers (27.1% vs. 9.4%, $p < 0.001$). Parents' ages ranged from 26 years to 76 years, with a mean age of 47.3 years ($SD=10.1$). Fathers were 4 years older than mothers ($p < 0.001$). With regard to occupation, more than half (53.8%) of the parent participants were farmers, 25.9% traders/artisans, and 15.1% formal sector employees, while about 5.2% were unemployed. More fathers than mothers (61.7% vs. 47.6%, $p < 0.001$) were farmers and the same was true for employment in the formal sector (17.9% vs. 12.8%, $p < 0.001$).

About two-thirds of the parents attended some school, of which half (50.5%) ended at the basic level. About 21.8% of fathers had completed at least secondary school, compared with 12.2% of mothers. The difference in educational experience was statistically significant ($p < 0.001$). In terms of religious affiliation, the majority (78.6%) was Christians; followed by Muslims (12.8%) and traditionalists (1.3%). The remainder did not belong to any religious group.

Table 4.1 Socio-demographic characteristic of parents

Characteristics	Total (N=823)	Mother (N=460)	Father (N=363)	Statistical Test
Age in years, <i>M (SD)</i>	47.3 (10.1)	45.3 (10.3)	49.7 (9.2)	$F(1, 821) = 40.0, p < .001$
Place of residence %				
Rural	54.3	51.9	57	$\chi^2(1) = 2.2, p > 0.05$
Urban	45.7	48.1	43	
Marital status %				
Single	2.4	2.6	2.2	$\chi^2(3) = 51.1, p < 0.001$
Married	77.0	68.1	88.4	
Divorced/separated	19.5	27.5	9.4	
Cohabiting	1.0	1.7	0.0	
Educational level %				
No Education	33.3	40.4	24.2	$\chi^2(2) = 29.1, p < 0.001$
Basic	50.3	47.4	54.0	
≥Secondary	16.4	12.2	21.8	
Religious affiliation %				
Christian	78.7	82.6	73.8	$\chi^2(3) = 16.9, p < 0.01$
Muslim	12.8	12.2	13.5	
Traditionalist	1.3	0.4	2.5	
No religion	7.2	4.8	10.2	
Occupation %				
Unemployed	5.2	7.6	2.2	$\chi^2(3) = 37.2, p < 0.001$
Farmer	53.8	47.6	61.7	
Trade/artisan	25.9	32.0	18.2	
Formal sector	15.1	12.8	17.9	
Socioeconomic status %				
Poor	40	40	40	$\chi^2(2) = .854, p > 0.05$
Middle	40	41.1	38.7	
Rich	20	18.9	21.3	

Note: Statistical test compares differences between mothers and fathers for each variable

4.1.4 Socio-demographic and other characteristics of young people

Table 4.2 provides details of the background characteristics of the young people. The sample comprised 52% females and 48% males. Their ages ranged from 10 years to 24 years with a mean age of 16.7 years ($SD = 4.0$). The composition of young people included 33.4% young adolescents aged 10-14 years, 39.1% older adolescents 15-19 years old, and 27.5% young adults aged 20-24 years. There were no differences between males and females in all the age groupings.

About three-quarters (76.1%) of the young people had had basic education, 21.4% had attained secondary education or higher, while some 2.5% had never been to school. Higher proportion of females had had basic education compared to males, while more male had attained at least secondary education. The difference was significant ($p < 0.05$). About seventy percent ($n=560$) was still in school. For the in-school young people, about 83% stated that they would like to end their education beyond secondary level, but some 2.5% (mainly the very young) did not know at what level they would like to end their education.

Concerning living arrangements, about two-thirds (67.2%) live with both parents, of which higher proportion obtains among males relative to females (71.9% vs. 61.4%, $p < 0.001$). Overall, more than 93% lived with at least one parent. The data also show that more females than males live with single mothers (25.2% vs. 16.9%), whereas more males than females lived with single fathers. The pattern of family structure differed significantly for males and females, $p < 0.001$. More than four-fifths (85.3%) had continuously stayed with their parents over the course of their life. More boys had had continuous stay with parents compared with girls (89.4% vs. 81.5% $p < 0.01$).

Table 4.2 Socio-demographic characteristics of young people

Characteristics	Total (n=823)	Females (n=428)	Males (n=396)	Statistical Test
Age in years, <i>M (SD)</i>	16.9(4.0)	16.8 (3.9)	16.9 (4.0)	$F(1, 821) = .03, p > 0.05$
Age group in years %				
10-14	32.4	31.3	33.7	$\chi^2(2) = 1.7, p > 0.05$
15-19	38.5	40.7	36.2	
20-24	29.0	28.0	30.1	
Place of residence %				
Rural	54.3	51.9	57	$\chi^2(1) = 2.2, p > 0.05$
Urban	45.7	48.1	43	
Marital status %				
Single	91.6	86.7	97.0	$\chi^2(3) = 35.6, p < 0.001$
Married	4.0	5.4	2.5	
Divorced/separated	0.6	1.2	0.0	
Cohabiting	3.8	6.8	0.5	
Educational level %				
No Education	2.8	4.2	1.3	$\chi^2(1) = 9.0, p < 0.05$
Basic	75.8	76.9	74.7	
≥Secondary	21.4	18.9	24.1	
Family Structure %				
Both parents	66.5	61.4	71.9	$\chi^2(3) = 28.8, p < 0.001$
Mother only	21.6	26.4	16.5	
Father only	5.2	3.0	7.6	
Grandparents	6.7	9.1	4.1	
Stayed with parents %				
Continuous stay	85.3	81.5	89.4	$\chi^2(1) = 10.0, p < 0.01$
Partial stay	14.7	18.5	10.6	
Closeness to parents %				
Not close	1.9	1.9	2.5	$\chi^2(2) = 16.6, p < 0.001$
Somewhat close	41.4	35.3	48.1	
Very close	56.6	63.3	49.4	
Parent restriction %				
No	29.9	29.3	28.7	$\chi^2(1) = 0.1, p > 0.05$
Yes	70.1	70.7	71.3	
Parent knowledge of child's whereabouts %				
Never	3.8	3.8	3.7	$\chi^2(2) = 1.7, p > 0.05$
Sometimes	36.5	34.3	32.2	
Almost always	59.7	62.0	64.0	

Note: Statistical test compares females and males for each variable.

4.2.0 Parent-child sexual communication

Research question: To what extent do parents communicate with their children about sexual and reproductive health issues?

4.2.1 General communication

Table 4.3 presents the distribution of parent and child reports of *general communication*²⁵. The table shows that almost all (95.4%) young people communicate with their parents about important things pertaining to their lives, such as education and general welfare. Slightly more sons than daughter said they are able to communicate on general issues (97.5% vs. 93.5%, $p < 0.01$). There was no difference in reports between rural and urban young people in terms of general communication (95.7% vs. 94.9%, $p = 0.299$). Similar to young people's report, almost every parent said they are able to talk to their children about important things pertaining to their lives. There was no parental sex difference in reports of general communication. Reports from parents and young people suggest that there is an excellent communication link between them.

Table 4.3 Distribution of parents' and young peoples' reports of general communication

Communication measure	Parent (N = 823)		Young People (N = 823)	
	Frequency	Percent	Frequency	Percent
General communication				
No	35	4.3	38	4.6
Yes	788	95.7	785	95.4
Global Sexual communication				
No	211	25.6	226	27.5
Yes	612	74.4	597	72.5

²⁵ A measure that seeks general information regarding sexual communication.

4.2.2 Parent-child sexual communication

The extent of sexual communication between parents and their children was assessed using a global measure of sexual communication as well as detailed examination of 20 specific sexual topics. These procedures were used to facilitate holistic assessment of parent-child dyads' understanding of sexual communication.

4.2.3 Global measure of sexual communication

Presented in Table 4.3 is the distribution of global single-item (yes/no) measure of parent-child sexual communication that investigated whether parents had ever discussed any sexual issue(s) with young people. About 72.8% of young people reported that their parents have ever talked to them about sexual issues. Parents' report on the other hand shows that 74.4% had ever communicated with their children on sexual issues. Chi-square analysis revealed that a higher proportion of daughters than sons reported discussions with their parents (76.3% vs. 69.1%, $p < 0.05$). Parental gender difference in general communication with their children was not statistically significant (Table 4.4).

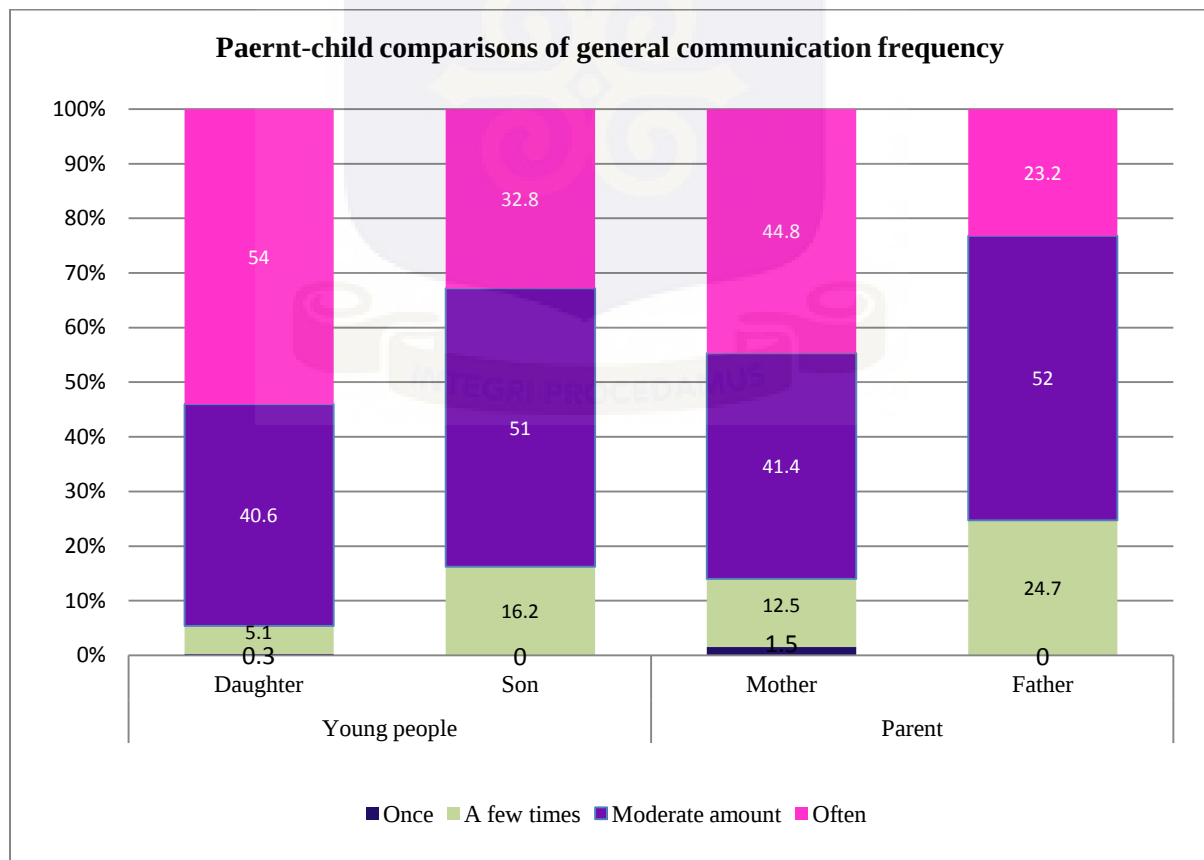
Table 4.4 Cross-tabulation of parent and child reports of global sexual communication by sex

Global sexual communication	Parent		<i>p</i> -value	Young people		<i>p</i> -value
	Mothers	Fathers		Daughters	Sons	
	Frequency (%)	Frequency (%)		Frequency (%)	Frequency (%)	
No	108 (23.5)	103 (28.4)	0.110	102 (23.8)	124 (31.4)	0.015
Yes	352 (76.5)	260 (71.6)		326 (76.2)	271 (68.6)	
Total	460 (100.0)	363 (100.0)		428 (100.0)	395 (100.0)	

4.2.3.1 Frequency of global sexual communication

Figure 4.1 shows the distribution of frequency of general sexual communication according to gender of respondents. More daughters compared to sons reported that communication with their parents was ‘often’ (44.8% vs. 23.2%, $p < 0.001$). Also, sons were more likely than daughters to report that their parents had had ‘moderate amount’ of sexual communication (52.0% vs. 41.4%, $p < 0.001$). The same trend of reporting was observed with respect to parents’ communication with children. More mothers reported that they had discussed sexual issues ‘often’ with their children (54.0% vs. 32.8%, $p < 0.001$), while fathers reported a ‘moderate amount’ (51.0% vs. 40.6%, $p < 0.001$).

Figure 4.1 Distribution of frequency of general sexual communication



4.2.4 Communication on specific sexual topics

What topics do parents talk about when they engage their children in communication?

Table 4.5 displays the frequency and percentage of reports of sexual communication between parents and young people on 20 specific sexual topics.

4.2.4.1 *Extent and patterns of parent-child communication*

Table 4.5 shows the pattern of sexual discussion, highlighting the most common and rare topics parents discuss with their children. The data shows that parents generally talk about sexual risk prevention and developmental topics compared with experiential sex topics. Frequently discussed topics (*in bold type face*) include: (1) *Sexual risk prevention* – abstinence, HIV/AIDS, STDs, consequences of premarital sex and substance use; (2) *Biological/developmental* – Menstruation (girls), physical development and puberty. For instance, both parents and young people reported sexual abstinence as the most widely discussed topic. Whereas 73.5% of parents reported they had discussed abstinence with their children, child report indicated that 69.2% of mothers and 45.5% of fathers had talked to them about abstinence.

Table 4.6 presents information on sexual discussion by parents, stratified by sex of child and young people report of discussion with mothers and fathers. Higher proportions of parents communicate more with daughters than sons on almost all topics, except for substance use.

Table 4.5 Parents and young people reports of discussion of specific sexual topics

Sexual Topic	Parent report	Young people report	
	<i>Discussion with child</i>	<i>Mother ever discussed</i>	<i>Father ever discussed</i>
	<i>N = 823</i> Frequency (%)	<i>N = 814</i> Frequency (%)	<i>N = 724</i> Frequency (%)
<i>Biological/developmental</i>			
Physical development	450 (54.9)	410 (50.4)	126 (17.4)
Menstruation/wet dream	288 (35.0) ²⁶	314 (39.0) ²⁷	44 (6.1) ²⁸
Puberty	458 (55.8)	427 (52.5)	123 (17.0)
Reproduction/having babies	55 (6.8)	48 (5.9)	4 (0.6)
Masturbation	19 (2.6)	15 (1.8)	7 (1.0)
<i>Sexual risk prevention or safety</i>			
Prevention of STDs	467 (56.7)	396 (48.8)	201 (27.7)
Prevention of HIV/AIDS	508 (61.9)	437 (53.7)	235 (32.4)
Abstaining from sex until marriage	604 (73.5)	563 (69.2)	330 (45.5)
Use of condoms	80 (9.8)	71 (8.7)	36 (5.0)
Contraceptives	47 (5.7)	40 (4.9)	7 (1.0)
Pregnancy	72 (8.8)	88 (10.8)	14 (2.0)
Abortion	178 (21.6)	173 (21.3)	73 (10.1)
Consequences of premarital sex	399 (48.7)	372 (45.7)	223 (30.8)
Substance use (e.g. alcohol & smoking)	325 (39.5)	306 (37.6)	204 (28.1)
<i>Experiencing sex</i>			
Sexual feelings	54 (6.6)	37 (4.5)	9 (1.3)
When to start sexual intercourse	155 (18.8)	131 (16.1)	62 (8.6)
Choosing sexual partners	96 (11.7)	83 (10.2)	28 (3.9)
How to handle sexual pressure	59 (7.2)	50 (6.2)	9 (1.2)
Safer sex	67 (8.2)	57 (7.0)	15 (2.1)
Homosexuality	42 (5.1)	37 (4.6)	29 (4.0)

²⁶ Comprises discussion with 273 (63%) parent on menstruation & 15 (3.8%) young boys about wet dreams.²⁷ Comprises discussion with 298 (70.6%) young girls on menstruation & 16 (4.2%) young boys about wet dreams.²⁸ Comprises discussion with 23 (6.4%) young girls on menstruation and 21 (5.8%) young boys about wet dreams

Table 4.6 Parents and young people reports of discussion of specific sexual topics**Distribution of parents (by sex of child) and young people who reported occurrence of discussion of sexual topics**

Sexual Topic	Parent report		Young people report	
	<i>Discussion with daughters</i> <i>n = 460</i>	<i>Discussion with sons</i> <i>n = 363</i>	<i>Mother ever discussed</i> <i>n = 814</i>	<i>Father ever discussed</i> <i>n = 724</i>
	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
<i>Biological/developmental</i>				
Physical development	261 (61.1)	189 (48.2)	410 (50.4)	126 (17.4)
Menstruation/wet dream	270 (65.2)	3 (0.8)	314 (39.0)	44 (6.1)
Puberty	266 (62.3)	192 (48.1)	427 (52.5)	123 (17.0)
Reproduction/having babies	48 (11.4)	7 (1.8)	48 (5.9)	4 (0.6)
Masturbation	9 (2.6)	10 (2.6)	15 (1.8)	7 (1.0)
<i>Sexual risk prevention or safety</i>				
Prevention of STDs	265 (61.5)	202 (51.1)	396 (48.8)	201 (27.7)
Prevention of HIV/AIDS	283 (66.3)	255 (57.1)	437 (53.7)	235 (32.4)
Abstaining from sex until marriage	337 (78.9)	267 (67.6)	563 (69.2)	330 (45.5)
Use of condoms	37 (8.7)	43 (10.9)	71 (8.7)	36 (5.0)
Contraceptives	33 (7.8)	14 (3.6)	40 (4.9)	7 (1.0)
Pregnancy	66 (15.5)	6 (1.5)	88 (10.8)	14 (2.0)
Abortion	122 (28.5)	56 (14.2)	173 (21.3)	73 (10.1)
Consequences of premarital sex	218 (51.2)	181 (45.9)	372 (45.7)	223 (30.8)
Substance use (e.g. alcohol & smoking)	105 (24.6)	220 (55.7)	306 (37.6)	204 (28.1)
<i>Experiencing sex</i>				
Sexual feelings	47.1 (11.1)	7 (1.8)	37 (4.5)	9 (1.3)
When to start sexual intercourse	85.5 (19.9)	70 (17.7)	131 (16.1)	62 (8.6)
Choosing sexual partners	42 (9.9)	17 (4.3)	83 (10.2)	28 (3.9)
How to handle sexual pressure	42 (9.9)	17 (3.3)	50 (6.2)	9 (1.2)
Safer sex	39 (7.2)	28 (7.1)	28.57 (7.0)	15 (2.1)
Homosexuality	19 (4.4)	23 (5.8)	37 (4.6)	29 (4.0)

Additionally, an open-ended question that sought to explore possible sexual topics parents would want to discuss with their children in sexual communication context generated 13 different topics. Multiple response analysis revealed five predominant topics (abstinence, STDs including HIV/AIDS, teenage pregnancy, consequences of premarital sex and substance use), which together constituted 83% of the 13 topics as presented in Table 4.7. The findings confirm those obtained from the assessment of the 20 topics (Table 4.5).

Table 4.7 Possible sexual topics parents believe are important to discuss: Multiple response analysis

Sexual Topic	Frequency	Percent (%)
Abstinence	420	27.4
STDs including HIV/AIDS	337	22.0
Teenage pregnancy	293	19.1
Substance use	119	7.8
Peer pressure/influence	108	7.0
Premarital sex	100	6.5
Focus on education	81	5.3
Abortion	26	1.7
Menstruation	19	1.2
Choosing sexual partner	15	1.0
Puberty	8	0.5
Safer sex	6	0.4
Physical development	2	0.1
Total	1534	100

Additionally, findings from the qualitative interviews also support the above results. Topics that frequently emerged included abstinence STDs, HIV/AIDS and premarital sex, which were mentioned by parents (both sexes) as those they commonly discuss with their children. The following statements illustrate the findings:

“I have repeatedly told her to abstain from pre-marital sex to avoid teenage pregnancy, STDs and AIDS; because AIDS is deadly, ...that it is better to abstain to avoid diseases, because AIDS and other STDs are not written on the faces of infected persons” (Rural mother, aged 47 years).

“I frequently talk to her (child) about HIV/AIDS, that she should better abstain from premarital sex or protect herself when having sex, so as to avoid diseases and pregnancy.” (Urban Mother, aged 52 years).

Reports from young people corroborated parents’ reports. The following are some quotations:

“Among the topics my mother taught me were how to protect myself from STDs like HIV/AIDS and Gonorrhoea. She also advised me to abstain from sex to avoid unwanted pregnancy and abortion” (Urban young boy, aged 16 years).

“My mother talked to me about menstruation when I was about 13 years. She has also advised me to protect myself from HIV/AIDS by abstaining from sex or use condom during sex” (Urban young girl, aged 22 years).

“...she has taught me about STDs, that if I had unprotected sex, I can get pregnant or contract HIV/AIDS and Gonorrhoea, so I should stay away from men” (Urban young girl, aged 14 years).

4.2.4.2 Rarely discussed sexual topics

More than half of the 20 topics were not often discussed by parents (Table 4.5). As reported by parents, six of the hardly ever discussed topics were masturbation (2.6%), homosexuality (5.1%), contraceptives (5.7%), sexual feelings (6.6%) and reproduction/having babies (6.8%) and handling sexual pressure (7.2%). A comparable trend (same topics and almost the same order) was observed concerning child’s report of mother communication as follows: masturbation (1.0%), sexual feelings (4.5%), homosexuality (4.6%), contraceptives (4.9%), sexual reproduction/having babies (5.9%) and handling sexual pressure (6.2%). However, child’s report of father discussion indicates that the six least discussed topics were reproduction (0.6%), contraceptives (1.0%), masturbation (1.0%), sexual pressure (1.2%) sexual feelings (1.3%) and pregnancy (2.0). In addition, where a male child was the child-

respondent, discussion about wet dreams in lieu of menstruation was posed; and about 3.8% of parents said they had discussed it.

Across all topics, parents reported higher levels of communication with their children than did young people. On the other hand, young people reported higher percentages of communications with mothers than with fathers (Tables 4.5 & 4.6).

4.2.5 Gender differences in discussion of sexual topics between parent and child

Gender differences in communication (discussion of specific sexual topics) between parents and their children were investigated by direct comparisons of proportions of parent-child reports of communication, and by chi-square analyses (Tables 4.8; 4.9 and 4.10). Three different sets of assessments were carried out by comparing parents' and young people's reports of discussions: (1) mothers' report vs. fathers' report (columns 1 & 2 in Table 4.8); (2) mothers' report of discussion vs. daughters and sons reports of whether discussion had occurred with mothers (columns 1 vs. columns 3 & 4 in Table 4.8); and (3) fathers' report of discussion vs. daughters and sons reports of whether discussion had taken place (column 2 vs. columns 5 & 6 in Table 4.8).

Information presented in Table 4.8 reveals that both mothers and fathers differ in reports of discussion of *biological/developmental-related* topics. Chi-square analyses (Table 4.9) suggest significant differences, with mothers being more likely than fathers to report discussion on topics such as physical development, $\chi^2 (1) = 27.23, p < 0.001$; menstruation, $\chi^2 (1) = 54.55, p < 0.001$; puberty, $\chi^2 (1) = 24.84, p < .001$; and reproduction, $\chi^2 (1) = 21.47, p < 0.001$. Generally, there were no parental gender differences in reports of discussion on topics

related to *sexual risk prevention*, except for pregnancy, $\chi^2 (1) = 32.29, p < 0.001$; and abortion, $\chi^2 (1) = 16.07, p < 0.001$. With regards to *experiential* sexual topics, mothers and fathers seemed to provide almost the same amount of communication to children, except for discussion on sexual feeling, with which mothers significantly differed from fathers, $\chi^2 (1) = 17.51, p < 0.001$.

With respect to young people's report of communication, higher proportion of daughters reported receiving communication from their mothers on almost all topics compared to sons' report (Table 4.8; columns 3 – 6). Chi-square analyses revealed that daughters and sons differed significantly in 10 out of the 20 topics, with higher topical differences occurring with *biological/physical development* topics (Table 4.10; columns 1 & 2). For father discussions with young people, sons were more likely than daughters to report receiving communication from their fathers. Statistically significant differences were found in 6 out of the 20 topics (Table 4.10 columns 4 & 5).

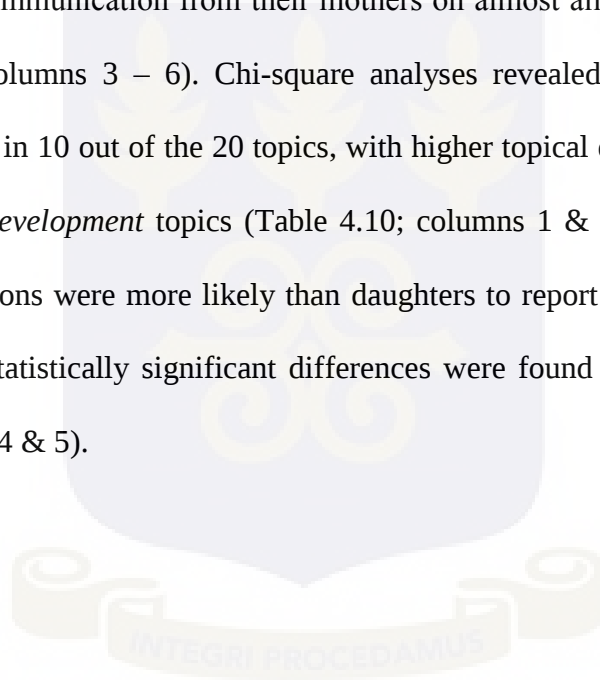


Table 4.8 Distribution of parent-child pairs discussing each of the specific sexual topics

SEXUAL TOPIC	PARENT		YOUNG PEOPLE			
	Discussion with child		Discussion with Mother		Discussion with Father	
	Mother %	Father %	Daughter %	Son %	Daughter %	Son %
<i>Biological/developmental</i>	1	2	3	4	5	6
Physical development	63.0	44.8	60.8	39.2	10.8	23.9
Menstruation/wet dream	74.8	38.1	70.6	4.2	6.4	5.8
Puberty	63.5	46.1	64.5	39.5	10.0	23.9
Reproduction/having babies	10.4	2.2	9.2	2.3	0.6	0.6
Masturbation	2.8	2.4	1.4	2.3	0.3	1.6
<i>Sexual risk prevention or safety</i>						
Prevention of STDs	58.9	54.0	53.1	44.1	23.3	32.1
Prevention of HIV/AIDS	64.0	59.2	57.1	50.0	26.9	37.8
Abstaining from sex until marriage	76.0	70.2	72.9	65.1	39.4	51.4
Use of condoms	9.6	9.9	7.8	9.7	2.2	7.7
Contraceptives	7.2	3.9	7.3	2.3	0.8	1.1
Pregnancy	13.8	2.5	18.4	2.6	2.8	1.1
Abortion	26.7	15.2	27.1	14.9	10.6	9.6
Consequences of premarital sex	48.4	49.0	47.4	43.8	26.4	35.1
Substance use (e.g. alcohol & smoking)	38.3	41.0	24.8	51.5	12.5	43.4
<i>Experiencing sex</i>						
Sexual feelings	9.9	2.5	6.6	2.3	0.8	1.7
When to start sexual intercourse	20.7	16.5	16.7	15.4	6.9	10.2
Choosing sexual partners	14.4	8.3	13.7	6.4	4.7	3.0
How to handle sexual pressure	9.0	5.0	9.9	2.1	1.7	0.8
Safer sex	9.4	6.6	8.7	5.1	1.4	2.7
Homosexuality	4.6	5.8	2.6	6.7	1.1	6.8

Table 4.9 Chi-square analysis of parents' report of discussion of specific sexual topics by sex

Sexual topic	Parent discussion with child		χ^2
	Mother (%)	Father (%)	
Biological/developmental			
Physical development	63.0	44.8	27.23*
Menstruation/wet dream	74.8	38.1	54.56*
Puberty	63.5	46.1	24.84*
Reproduction/having babies	10.4	2.2	21.47*
Masturbation	2.8	2.4	0.12
Sexual risk prevention or safety			
Prevention of STDs	58.9	54.0	2.00
Prevention of HIV/AIDS	64.0	59.2	1.93
Abstaining from sex until marriage	76.0	70.2	3.48
Use of condoms	9.6	9.9	0.03
Contraceptives	7.2	3.9	4.20
Pregnancy	13.8	2.5	32.29*
Abortion	26.7	15.2	16.07*
Consequences of premarital sex	48.4	49.0	0.04
Substance use (e.g. alcohol & smoking)	38.3	41.0	0.62
Experiencing sex			
Sexual feelings	9.9	2.5	17.51*
When to start sexual intercourse	20.7	16.5	2.26
Choosing sexual partners	14.4	8.3	7.33
How to handle sexual pressure	9.0	5.0	4.79
Safer sex	9.4	6.6	2.10
Homosexuality	4.6	5.8	0.61

Note: χ^2 compares gender by ever talked (yes/no).

Significant differences between mothers and fathers are indicated by asterisks.

* $P \leq .0001$.

Table 4.10 Chi-square analysis of young people report of discussion of specific sexual topics by sex

Sexual topic	YOUNG PEOPLE					
	Discussion with Mother (%)			Discussion with Father (%)		
	Daughter	Son	χ^2	Daughter	Son	χ^2
<i>Biological/developmental</i>	1	2	3	4	5	6
Physical development	60.8	39.2	37.62**	10.8	23.9	21.50**
Menstruation/wet dream	70.6	4.2	21.41**	6.4	5.8	0.22
Puberty	64.5	39.5	51.07**	10.0	23.9	24.80**
Reproduction/having babies	9.2	2.3	17.31**	0.6	0.6	0.00
Masturbation	1.4	2.3	0.90	0.3	1.6	3.58
<i>Sexual risk prevention or safety</i>						
Prevention of STDs	53.1	44.1	6.56	23.3	32.1	6.88
Prevention of HIV/AIDS	57.1	50.0	4.09	26.9	37.8	9.76*
Abstaining from sex until marriage	72.9	65.1	5.72	39.4	51.4	10.40*
Use of condoms	7.8	9.7	0.98	2.2	7.7	11.41*
Contraceptives	7.3	2.3	10.89*	0.8	1.1	0.13
Pregnancy	18.4	2.6	52.98**	2.8	1.1	2.71
Abortion	27.1	14.9	18.22**	10.6	9.6	0.19
Consequences of premarital sex	47.4	43.8	1.04	26.4	35.1	6.41
Substance use (e.g. alcohol & smoking)	24.8	51.5	62.07**	12.5	43.4	15.48**
<i>Experiencing sex</i>						
Sexual feelings	6.6	2.3	8.64*	0.8	1.7	2.40
When to start sexual intercourse	16.7	15.4	0.28	6.9	10.2	0.96
Choosing sexual partners	13.7	6.4	11.72*	4.7	3.0	1.44
How to handle sexual pressure	9.9	2.1	21.66**	1.7	0.8	1.06
Safer sex	8.7	5.1	4.00	1.4	2.7	1.63
Homosexuality	2.6	6.7	7.72	1.1	6.8	86.01**

Note: χ^2 compares gender by ever talked (yes/no).

Significant differences between daughters and sons are indicated by asterisks.

* $P \leq 0.001$. ** $P \leq 0.0001$.

4.2.5.1 Gender differences in content of sexual communication

In addition to the overall reports of communication between parents and children, the content of communication (number of topics discussed) was evaluated to determine the average number of topics young people and parent reported discussing. Table 4.11 provides the mean number of topics discussed as reported by parents and by young people (daughters and sons).

Table 4.11 Mean number of sexual topics discussed by respondents

Mean (standard deviation) number of sexual topics discussed as reported by parents and by young people stratified by sex of respondent

Content of communication	Group Total	Sex of respondent		
		Daughter	Son	t-test
Discussion by parents	5.37 (4.2)	6.00 (4.4)	4.61 (3.8)	4.65*
		Mother	Father	
Discussion with mother	4.98 (4.1)	5.80 (4.3)	4.08 (3.7)	6.08*
Discussion with father	2.44 (3.1)	1.99 (2.7)	3.00 (3.3)	-4.95*

* $p < 0.001$.

Parents report in Table 4.11 indicates that they had averagely discussed only 5 of the 20 sexual topics with their children. Young people's reports suggest that while mothers had discussed about 5 topics with their children, father had discussed only 2 topics. Table 4.11 shows that mothers had discussed more than twice the mean sexual topics discussed by fathers (4.98 vs. 2.44).

Three different independent samples *t*-tests were performed to assess whether there were mean differences in parents', sons' and daughters' reports of content (number of sexual topics) of communication. Report from parents indicate significant disparity between mothers' content of discussion ($M = 6.0, SD = 4.3$) compared with fathers ($M = 4.6, SD = 3.8$); $t(821) = 4.65, p < 0.001$. The size of the mean difference in topics discussed explained by sex of parent was $r = .17$. This suggests that mothers discuss more sexual topics with their children compared with fathers. Thus the null hypothesis 1 was rejected.

Apart from reports of communication from parents' perspective, young people were also asked to indicate the extent to which their parents had discussed sexual topics (issues) with them. Report from daughters indicates that mothers discuss more sexual topics ($M = 5.8, SD = 4.3$) compared to mother discussions reported by sons ($M = 4.1, SD = 3.7$). The difference was statistically significant $t(812) = -6.08, p < .001$. The magnitude of the mean difference (-1.7, 95% *CI*: 1.11 - 2.23) represents a small effect size of $r = .21$. This finding did not support the null hypothesis 2. With regard to discussion with fathers, sons reported higher mean number of topics ($M = 3.0, SD = 3.3$) as opposed to the mean number of topics reported by daughters ($M = 1.9, SD = 2.7$; $t(821) = -4.65, p < 0.001, r = .18$). Therefore, the null hypothesis 3 was rejected.

The above discussions clearly demonstrate that mothers talk more than fathers, and also communicate more with daughters than sons. Fathers on the other hand, talk more to their sons than their daughters. These findings support the results presented in Table 4.9 & 4.10.

Evidence from the qualitative interviews was similar to the above findings. Some young people indicated that their fathers were hardly available at home. Even when they were available, they tended to refer issues of sexual discussion to mothers, because of communication barriers such as shyness. The following statements illustrate fathers' little involvement in sexual communication with their children, especially their daughters:

"My girls rather prefer talking to their mother about sexual issues and talk to me about general life issues. I sense they feel shy to come to me on issues like this (sexual discussion). This may partly be attributed to the fact that I don't usually stay at home due to frequent travels because of the nature of my work" (Urban father, aged 50 years).

"...talking about sex..., that is the work of her mother!" (Rural father, aged 42 years).

Other fathers who felt their daughters were somewhat distant from them lamented:

"How can I (a male) discuss such (sexual) issues with my daughter...she is not my talking mate" Urban father, aged 39).

"She is closer to her mother than I, ... she does not even come to me, so her mother takes care of such (sexual) discussions." (Urban father, aged 40 years).

Some young people commented as follows:

"My father has never discussed anything like this with me. He works in Kumasi and comes home twice every month; I am rather close to my mother who talks to me about life issues" (Urban young boy, aged 16 years).

"My mother often discusses sexual issues with me. She taught me menstrual management and personal hygiene when I started to menstruate. She continually cautions me about teenage pregnancy, abortions and how to protect myself from STDs...but as for my father; he does not talk to me about these issues" (Rural young girl, aged 20 years).

4.2.6 Rural-urban differences in reports of communication by parent and child

Chi-square analyses of the 20 sexual topics by place of residence showed some differences between rural and urban young people's reports of communication with parents. Young people in urban areas reported significantly more communication with their mothers on 4 of the 20 topics. These include discussion on choosing sexual partners, $\chi^2(1) = 13.78, p < 0.001$; safer sex, $\chi^2(1) = 10.67, p < 0.001$; sexual intercourse, $\chi^2(1) = 9.35, p < 0.001$ and homosexual, $\chi^2(1) = 16.49, p < 0.001$ (Table 4.12). However, young people's report of communication received from their fathers on the 20 topics did not differ in any respect by place of residence, suggesting that both rural and urban fathers deliver almost the same level discussion with their children.

Further chi-square investigations were conducted on the 4 topics that revealed significant differences among rural and urban parents by stratifying by sex of the child. In all the 4 topics, only urban young boys reported significantly more communication with their mothers. There was no difference in daughters' reports of communication with rural and urban mothers, except for discussion on sexual pressure, where urban girls reportedly received more discussions from their mothers. In the case of communication with fathers, discussion of sexual intercourse and homosexuality with urban father was statistically significant.

Table 4.12 Percent differences in young people's report of discussion with parents by place of residence

SEXUAL TOPIC	YOUNG PEOPLE'S REPORT					
	Discussion with mother (%)			Discussion with father (%)		
	Rural	Urban	χ^2	Rural	Urban	χ^2
<i>Biological/developmental</i>						
Physical development	48.2	51.3	1.94	18.2	16.5	0.38
Menstruation/wet dream	36.8 ²⁹	41.5 ³⁰	0.16	6.2 ³¹	6.0 ³²	0.16
Puberty	50.7	54.7	1.30	17.7	16.2	0.30
Reproduction/having babies	5.5	6.5	0.35	0.3	0.9	1.34
Masturbation	1.6	2.1	0.45	0.8	1.2	0.45
<i>Sexual risk prevention or safety</i>						
Prevention of STDs	45.5	52.7	4.22	28.5	26.7	0.28
Prevention of HIV/AIDS	49.7	58.4	6.27	32.3	32.5	0.01
Abstaining from sex until marriage	67.3	71.3	1.49	47.2	43.5	1.01
Use of condoms	6.1	11.8	8.17	5.4	4.5	0.31
Contraceptives	4.1	5.9	1.43	0.8	1.2	0.34
Pregnancy	8.9	13.1	3.82	1.8	2.1	0.08
Abortion	18.1	24.9	5.57	9.0	11.4	1.12
Consequences of premarital sex	41.0	51.2	8.41	27.7	34.3	3.73
Substance use (alcohol & smoking)	35.1	40.5	2.45	36.4	30.1	1.19
<i>Experiencing sex</i>						
Sexual feelings	3.9	5.4	1.06	1.2	1.3	0.01
When to start sexual intercourse	12.5	20.4	9.35*	6.4	11.1	5.01
Choosing sexual partners	6.6	14.5	13.78**	3.6	4.2	0.16
How to handle sexual pressure	4.1	8.6	9.35	1.3	1.2	0.12
Safer sex	4.3	10.2	10.67*	1.8	2.4	0.33
Homosexuality	1.8	7.8	16.49**	2.6	5.7	4.57

Note: Statistical test compares differences between mothers and fathers for each variable

²⁹ Figure comprises 68% menstruation and 4% wet dreams discussion by rural mothers.

³⁰ Figure comprises 72% menstruation and 5% wet dream discussion by urban mothers

³¹ Figure comprises 5.9% menstruation and 6.4% wet dreams discussion by rural fathers

³² Figure comprises 7% menstruation and 5% wet dream discussion by urban fathers.

4.2.7 Initiation of parent-child sexual communication

In-depth interview narratives from parents and young people indicate that sexual communication initiation was basically a parental affair. In almost all cases, parents launch the talks and control the process. In the process of communication, some young people ask questions and others remain quiet due to shyness. The following quotations affirm this point.

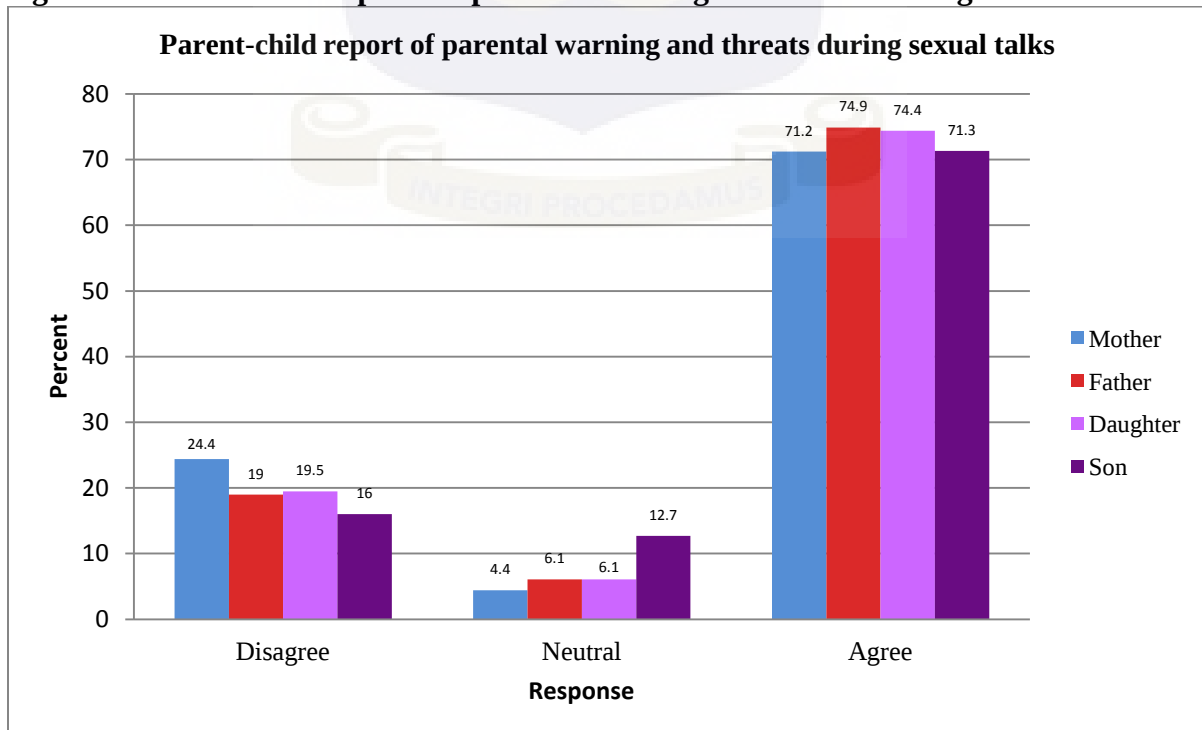
“...I have taught him so many things, and I comfortably do that often, because it is my responsibility as a mother to offer such training to enable him know about sexual matters” (Urban mother, aged 52 years).

“I am not able to freely talk my mother about sexual issues, because she is an adult and I feel shy and very uneasy to ask her questions pertaining to sex except menstruation ... I am only able to ask her questions on reproductive health when they (teachers) give us assignment from school” (Urban young girl, aged 14 years).

4.2.7.1 Parental communication strategies

Figure 4.2 shows the percent distribution of parent-child responses regarding parental communication strategy by sex.

Figure 4.2 Parent-child reports of parental warning and threats during sexual talks



Close examination of Figure 4.2 reveals that parents and children generally agree that parents use warnings and threats during the process of sexual communication. Comparisons show that there were no marked differences in the proportions reported by the two respondents. Over 70% of parents and children each reported agreement, confirming that most parents use warnings and threats to convey sexual messages.

Qualitative evidence supports the above findings. Thematic analysis revealed that in all forms of sexual communications, parents try to put fear in their children by emphasising the dangers associated with being sexually active. Most young people reported that sexual risk prevention topics such as abstinence, STDs, HIV/AIDS and pregnancy are frequently associated with parental warnings and threats during discussion. The statements below illustrate this fact:

“Our teachers don’t warn us when they teach sex education in school...but my mother warns and threatens me when she talks to me about sexual issues, because she is afraid I might attempt those things because of curiosity “(Rural young boy, aged 14 years).

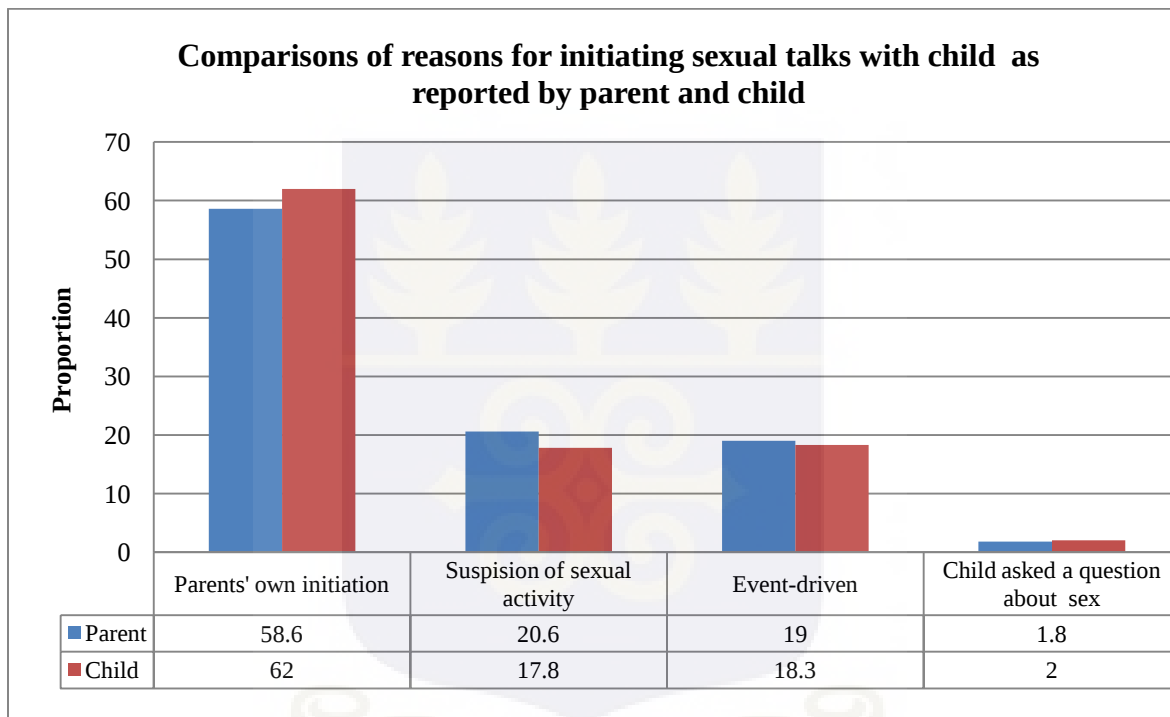
“My mother is very knowledgeable on sexual issues and has talked to me about STDs, teenage pregnancy, and abortion and their consequences like barrenness, sicknesses and death or school drop-out which can bring hardships in life. She has thus warned me to abstain from sex and not to engage in unprotected sex, since I can get pregnant or contract HIV/AIDS and Gonorrhoea” (Urban young girl, aged 14 years).

I will never allow my daughter to engage in premarital sex, but when she goes out, I am not with her so the best thing to do is to advise her either ways; to abstain and also how to protect herself from pregnancy and diseases. In the process of advising her, I warn her about the consequences of these things, but in a friendly and nice way in order not to scare her too much for her to hide her problems from me” (Urban mother, aged 52 years).

4.2.7.2 Reasons parents initiate sexual communication

Parent-child pairs responded to the same item phrased appropriately for both, concerning the rationale behind parents' initiation of sexual communication action with their children. Figure 4.3 presents the distribution of the various reasons reported by parents and children.

Figure 4.3 Reasons for initiation of parent-child sexual communication



Comparison of the two sets of reasons reveals a general trend. Parents and children unanimously cited “*parents’ own initiation*” as the main reason for parental communication action with children reporting about 3.4% higher than parents. The least reported reason by both respondents was “*child asked a question about sex*”. The trend of responses from both participants indicates agreement in reports between parents and their children.

In-depth interview with parents and young people confirmed that more parents engage children in sexual communication purely on the parents’ own initiation. Various rationales

were advanced as the motivation for pursuing. Parents generally are concerned about the safety of their children. In particular, parents believe that their daughters, especially, are prone to trickeries of men thus they need to be equipped with sex education. The following statements represent some of the reasons for parental sexual communication:

“...because she is growing into womanhood, she must know and be able to imitate me as a mother, so I have to teach her things relating to her sexual life as well as household chores”. (Urban mother, aged 47 years)

“Premarital sex brings hardships in the family, and girls suffer most compared to boys..., so it is very important to let them know about these things (sexual issues), because if you do not tell them they will go astray and bring you all sort of irresponsible behaviours with their untold hardships” (Rural mother, aged 38 years).

“My girl is of age, so I have advised her on how to keep herself neat during and after menstruation. I also advised her to stay chaste. In fact, I have warned her on the tricks of men and bad friends’ influences... so she could avoid teenage pregnancy, because I can’t take care of two people. I try my very best to give her basic needs so that she will not fall for cheap guys who might lure her with money” (Urban mother, aged 42 years).

“My daughter looks older in stature, so I feel she should know about these things...so that no man can deceive her” (Rural Mother, aged 36 years).

“In the olden days, young people were able to abstain from sex until marriage, but these days, no! So I advised him to emulate me and stay away from girls and bad boys” (Rural father, aged 60 years).

It was also evident that parents engaged in communication because they wanted their children to have secure future. As reported by a one urban mother,

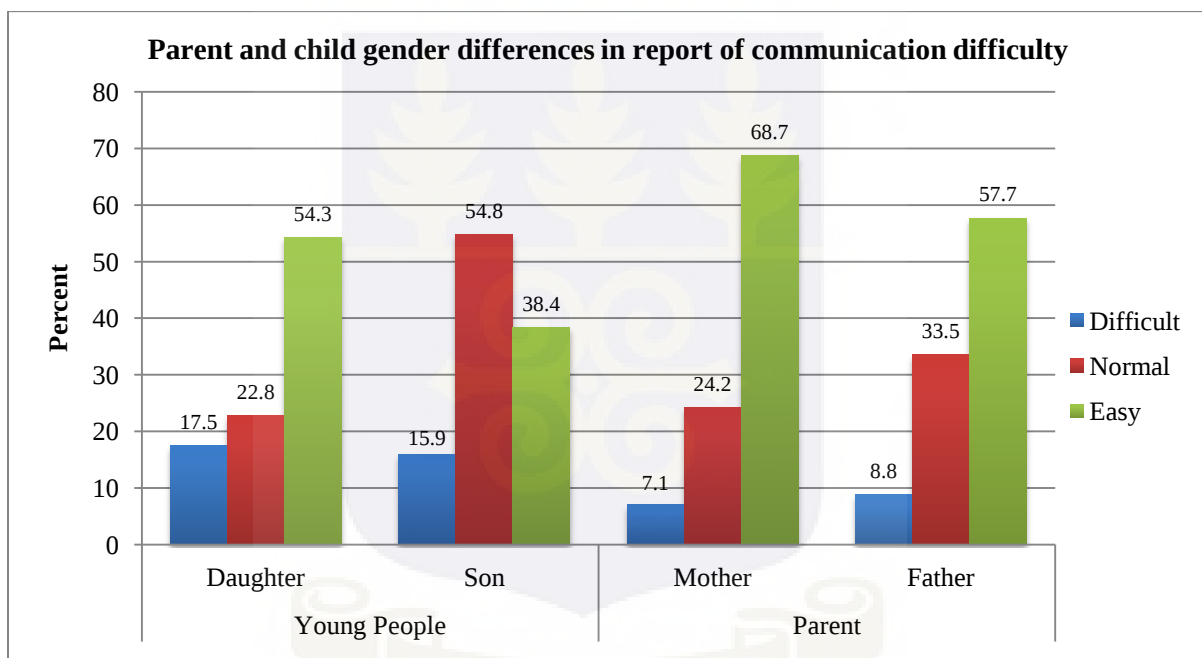
“My son asked questions about sexual issues, and I used that opportunity to educate him since he must know certain things about sex so he can have control over his life for a brighter future”

4.2.8 Parent-child differences in report of communication difficulty by sex

Figure 4.4 displays the proportions of parent-child reports of communication concerning how parents and children feel talking to each other about sexuality.

Parent and child responses were cross-tabulated separately and the results are presented in Figures 4.4. More mothers than fathers reported that they find it “easy” to talk about sex with their children while more fathers than mothers found sexual communication “normal” or “difficult”. Differences were statically significant at $p < 0.05$.

Figure 4.4 Parent and child sex differences in report of communication difficulty



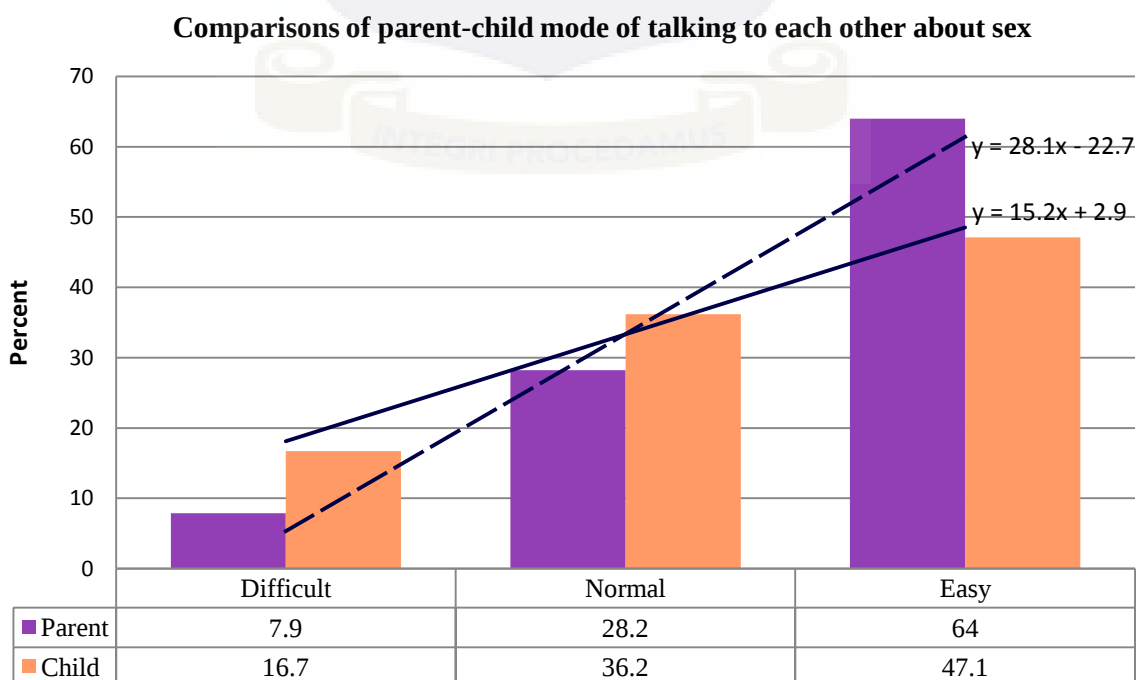
Note: Differences between young people was statistically significant at $p < .001$; parent differences was significant at $p < .05$

With respect to young people (Figure 4.4), daughters find it comparatively easier to discuss sexual issues with parents than sons do; whilst more sons (more than twice) relative to daughters (54.8 vs. 22.8) perceive parent-child sexual communication as “normal”. Chi-square test was statistically significant at $p < 0.001$.

As illustrated in Figure 4.5, parents' reports suggest that very few (8%) find it difficult to talk to their children about sexual issues while over 92% indicated that sexual communication is either "normal" (28.2%) or "easy" (64.0%). Young people reported a similar trend. Higher proportion of young people than parents reported "difficult" and "normal" communication with parents; nevertheless, they reported lower (47.1%) level of "easy" communication with parent compared to parents' report.

Taken together, a general linear trend is discerned about parent and child reports (Figure 4.5); which suggests that parents reported slight difficulties and greater ease with sexual communication. The gradients (slope) of the two straight line equations (28.1 vs. 15.2) for parents and children respectively, suggest that parents reported relatively little difficulties and greater ease of communication than children (Figure 4.5).

Figure 4.5 Parent-child differences in mode of communication



The following extracts from the qualitative interviews concerning how difficult or easy it is to talk about sex were in consonance with the findings from the quantitative analyses, and they also illustrate the fact that parents relatively find it easier to talk about sex compared with children.

“My mother talks to me easily about sexual matters. I am sometimes able to express my mind but generally, I find it difficult to ask questions since she might think that I am already doing what I asked. I also sometimes consider some of these things as adult matters, so I rather find it easy to ask my friends than my parents” (Urban young girl, aged 21 years).

I don't feel shy at all to talk to her on sexual matters. I feel free and easy to talk to her about these issues plainly; even nowadays she complains that I talk too much. This is because I see her as my daughter and also a friend. So I am able to talk to her as her mates do. She is also able to ask questions and express her mind during conversations. Sometimes she rather feels shy when I am talking sexual issues in plain terms and she laughs over it” (Urban mother, aged 52 years).

4.2.9 Timing of sexual communication

4.2.9.1 Perceived appropriate age for sexual discussion

Table 14 presents the details of parents' report of the most appropriate age to initiate sexual discussion with children. A median age of 15 years ($M = 14$ years, $SD = 2.7$) was reported to be the most appropriate age for engaging children in sexual discussions. Mothers reported significantly lower age of discussion compared to fathers, $t(809) = -3.5$, $p = 0.001$.

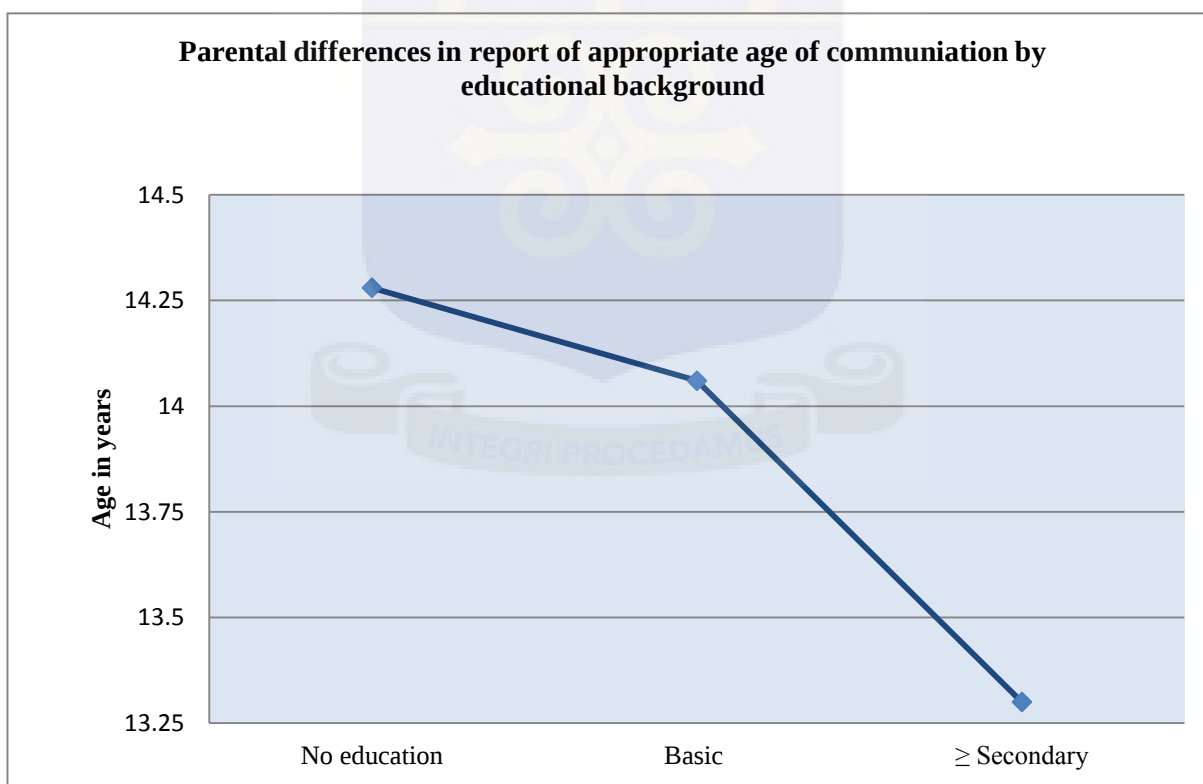
Table 4.13 Appropriate age for sexual communication

Mean and median age for discussing sexual issues with children as reported by parents

Respondent	Frequency	Mean age (SD)	Median age	Range (years)
Mothers	450	13.7 (2.7)	14.0	6 – 20
Fathers	361	14.4 (2.6)	15.0	6 – 20
Total	811	14.0 (2.7)	15.0	6 – 20

Furthermore, ANOVA technique was used to examine parental differences in report of appropriate age of sexual communication by educational background. There was a statistically significant mean age differences between parents with no education, basic education and secondary education; $F(2, 811) = 6.86, p = 0.001$. A post hoc multiple comparisons using the Hochberg GT2 test³³ demonstrated that compared with parents with no education ($M = 14.32, SD = 2.7$) or basic education ($M = 14.10, SD = 2.6$); parents with at least secondary education ($M = 13.29, SD = 2.8$) were significantly more likely to talk to their children a year earlier; mean difference = -1.02 years; 95% CI (-1.69 – -0.35), $p = 0.001$ (Figure 4.6)

Figure 4.6 Parent report of appropriate age of discussion by educational level



³³ Appropriate multiple comparison tests for assessing mean differences when there is wide variability in the sample sizes across test groups.

Table 4.14 Cross-tabulation of parents' report of timing of communication**Proportion of parents reporting communication with their children before child initiated sexual intercourse**

Timing variable	Mothers		Fathers		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Off-time	185	40.2	182	50.1	367	44.6
On-time	275	59.8	181	49.9	456	55.4
Total	460	100.0	363	100.0	823	100.0

Table 4.15 shows that about 55.4% of young people received on-time sexual communication, from their parents; that is, parents provided sexual communication before the child initiated sexual intercourse (see Chapter 3 Section 3.10.4 for definition of on-time and off-time). There was a significant difference between mothers and fathers timing of sexual discussion, with a higher proportion of mothers than fathers (60% vs. 50%) reporting on-time sexual discussion, $\chi^2 (1) = 8.08, p < 0.01$. Further analysis revealed an odds ratio of 0.67; (95% confidence interval = 0.51 – 0.88), indicating that fathers were 33% less likely to provide on-time sexual communication to their children. There was however, no variation in the timing of communication between rural and urban parents. On the other hand, cross-tabulation between the timing of communication and sex of child demonstrated no statistically significant difference between daughters and sons (58.4% vs. 52.2%, $p = 0.07$).

4.2.9.2 Age of discussing specific sexual topics

All parents and children who reported discussions on each specific sexual topic were asked to state the age of the child when such discussions occurred. Table 4.16 shows the means age of discussion for each topic as by parents and young people. Results indicate that generally,

discussion of biological/developmental topics (physical development, puberty, menstruation) occurred before age 14 years, while discussion of sexual risk prevention topics (such as STDs, HIV/AIDS, abstinence, consequences of premarital sex, substance use) occurred before age 15 years. Discussion on the rest of the topics occurred between 16 – 18 years.



Table 4.15 Mean age of discussing specific sexual topics**Mean age (years) of discussing specific sexual topics as reported by parents and young people**

Sexual topic	Parent report	Young people report	
	Mean age of discussion with child (SD)	Mean age Discussion with mother (SD)	Mean age Discussion with father (SD)
<i>Biological/developmental</i>			
Physical development	13.4 (2.3)	13.3 (2.2)	13.3 (2.3)
Menstruation	13.6 (2.1)	13.7 (1.8)	13.8 (1.7)
Puberty	13.4 (2.3)	13.4 (2.2)	13.4 (2.3)
Reproduction	16.4 (3.1)	17.0 (2.8)	14.0 (4.2)
Masturbation	14.7 (2.0)	14.4 (2.0)	16.4 (2.7)
Wet Dreams	14.5 (1.7)	14.6 (2.1)	14.6 (1.7)
<i>Sexual risk prevention</i>			
Prevention of STD	14.3 (2.2)	14.7 (2.3)	14.8 (2.2)
Prevention of HIV/AIDS	14.1 (2.3)	14.4 (2.5)	14.5 (2.5)
Abstinence	14.2 (2.3)	14.5 (2.3)	14.6 (2.4)
Use of condom	15.8 (2.2)	16.4 (2.4)	16.0 (2.4)
Contraceptives	16.7 (2.5)	17.5 (2.6)	17.1 (2.2)
Pregnancy	15.3 (2.4)	15.8 (2.1)	15.4 (2.3)
Abortion	15.7 (2.2)	16.1 (2.1)	16.2 (2.1)
Premarital sex consequence	14.6 (2.2)	14.9 (2.2)	14.9 (2.5)
Substance use	14.5 (2.6)	15.0 (2.3)	14.9 (2.7)
<i>Experiencing sex</i>			
Sexual Feelings	14.7 (2.3)	15.0 (2.7)	16.4 (2.8)
When to start sex	15.0 (1.9)	15.3 (1.8)	15.6(2.0)
Choosing sex partner	17.2 (2.4)	17.8 (2.5)	18.0 (2.4)
Sex pressure	15.6 (2.6)	16.3 (2.5)	16.3 (2.5)
Safer Sex	16.2 (3.0)	16.8 (2.3)	16.5 (2.6)
Homosexuality	16.4 (3.2)	17.5 (2.5)	17.9 (2.2)

4.3.0 Determinants of parental sexual communication

Research question: Do parental/family factors influence the frequency of parental sexual communication with young people?

In the following analyses (Section 4.3.0 – 4.3.6), parents' report of frequency of sexual discussion with young people was used as the dependent variable to examine family factors that may potentially explain parental communication behaviour. For the purposes of this study, the family factors assessed included *family socioeconomic status (SES)*, *family structure*, *monitoring*, *family religiosity*, *parental discipline*, *parental permissiveness* and *family connectedness*. Two techniques were utilized. First, bivariate associations were established between the dependent variable and each individual family factor. Second, multiple linear regression approach was thereafter used to investigate the predictors of parental communication controlling for parental demographic variables of age and educational attainment.

4.3.1 Relationship between frequency of communication and SES

A one-way ANOVA was performed to explore the impact of SES on the frequency of parental communication with their children. Initial assessment suggested that there were no violations of test assumptions. As presented in Table 4.17, there was a statistically significant linear trend, $F(2, 820) = 16.33, p < 0.001$. This indicates that as the level of family wealth increases from poor to rich, the frequency of parental communication increases proportionately. An effect size, Omega squared³⁴ (ω^2), computed was 0.19, indicating a large

³⁴ A measure of the effect size associated with ANOVA that is less biased than *eta squared*. It is a function of the *model sum of squares* and the *residual sum of squares*. In this analysis, Omega squared was computed manually because SPSS does not perform such test. The formulae for computing omega squared, and guidelines to its interpretation are provided in Appendix 1.

association. A post-hoc investigation was thus conducted using the Gabriel's test³⁵ (Table 4.18). The choice of this test was informed by the slight sample size variations among the three SES groups. The post-hoc analysis established significant variations in mean frequency score among the different SES groups. On the average, rich families talk more ($M = 15.5$, $SD = 10.4$) to their children (5.4 times higher 95% $CI = 1.80 - 3.34$, $p < 0.001$) than the poor families ($M = 11.8$, $SD = 10.0$), and about 3.7 times higher (95% $CI = 1.80 - 3.34$, $p < 0.001$) relative to the middle class ($M = 10.1$, $SD = 9.6$).

Table 4.16 Relationship between frequency of parent communication and SES

Frequency of communication - parent						
SES	N	Mean	Standard Deviation	95% Confidence Interval for Mean	Minimum	Maximum
Poor	329	10.1	9.6	9.1 – 11.1	0.0	45.0
Middle	329	11.8	10.0	10.7 – 12.9	0.0	51.0
Rich	165	15.5	10.4	13.9 – 17.1	0.0	47.0
Total	823	11.8	10.1	11.2 – 12.5	0.0	51.0

Overall F -ratio: $F(2, 820) = 16.33$, $p < 0.001$

Table 4.17 Gabriel post hoc multiple comparisons for SES

Dependent variable: Frequency of parent communication

(I) SES	(J) SES	Mean Difference (I-J)	Standard Error	Significance	95% Confidence Interval
Poor	Middle	-1.68	0.8	0.090	-3.5 – 0.17
	Rich	-5.40*	1.0	0.000	-7.6 – -3.17
Middle	Poor	1.68	0.8	0.090	-0.2 – 3.5
	Rich	-3.72*	1.0	0.000	-5.9 – -1.5
Rich	Poor	5.40*	1.0	0.000	3.2 – 7.6
	Middle	3.72*	1.0	0.000	1.5 – 5.9

* The mean difference is significant at the 0.05 level.

³⁵ Gabriel's post-hoc test is a multiple comparison procedure performed to determine differences among various categories.

4.3.2 Association between frequency of communication and family structure

The same procedure used for Section 4.3.1 was employed to assess the association between frequency of communication and family structure. Tables 4.19 and 4.20 present details of the differences in mean communication frequency reported by parents in the various family types, and their associated post-hoc multiple comparisons. The F -statistic showed statistically significant differences in mean frequency score among the three family types (both parents, single parent and other), $F(2, 820) = 3.65, p < 0.05, \omega^2 = .08$. The magnitude of ω^2 suggests that the variability in means represents a medium effect. The Gabriel's post-hoc investigations (Table 4.20) differentiated single parent households ($M = 13.4, SD = 10.4$) as statistically different from two-parent households ($M = 11.3, SD = 10.1$) and 'other' households ($M = 10.8, SD = 8.7$) in the light of frequency of sexual communication. In sum, parents from intact families and 'other families' (grandparents and other relatives) tend to talk less with their children about sex, compared with single-parent families.

Table 4.18 Relationship between frequency of parent communication and family structure

Family Structure	N	Mean	Frequency of parent communication			
			Standard Deviation	95% Confidence Interval for Mean	Minimum	Maximum
Both Parents	547	11.3	10.1	10.5 – 12.2	0.0	51.0
Single Parent	221	13.4	10.4	12.0 – 14.8	0.0	47.0
Other	55	10.8	8.7	8.4 – 13.2	0.0	38.0
Total	823	11.8	10.1	11.2 – 12.5	0.0	51.0

Overall F -ratio: $F(2, 820) = 3.65, p < 0.05$

Table 4.19 Gabriel's post hoc multiple comparisons for family structure

Dependent variable: frequency of parent communication

(I) Family structure	(J) Family structure	Mean Difference (I-J)	Standard Error	Significance	95% Confidence Interval
Both Parents	Single Parent	-2.1*	0.8	0.025	-3.9 – -0.2
	Other	0.5	1.4	0.967	-2.5 – 3.5
Single Parent	Both Parents	2.1*	0.8	0.025	0.2 – 3.9
	Other	2.6	1.5	0.201	-0.9 – 6.0
Other	Both Parents	-0.5	1.4	0.967	-3.5 – 2.5
	Single Parent	-2.6	1.5	0.201	-6.0 – 0.9

* The mean difference is significant at the 0.05 level.

4.3.3 Association between frequency of communication and family religiosity

The relationship between frequency of communication and family religiosity was investigated using the Pearson's product-moment correlation coefficient (r). Before the main analysis, a preliminary assessment was carried out to ensure that there was no violation of the normality, linearity and homoscedasticity assumptions. The analysis revealed that religiosity correlates positively with the frequency of communication $r = .18$, $p < .001$. An assessment of the strength of the association indicated that relationship between religiosity and frequency of communication ($R^2 = .032$) was not strong. In other words, religiosity helps to explain only 3.2% of the variance in the mean parental communication frequency score.

4.3.4 Relationship between frequency of communication and parents' sexual knowledge

Zero-order correlation analysis between parents' frequency of communication and parents' sexual knowledge demonstrated a positive association between the variables, $r = 0.35$, $p < 0.001$, $R^2 = 0.123$. The result suggests that higher level of sexual knowledge is significantly associated with report of higher frequency of parental communication. However, the magnitude of the variation represents a small effect size.

4.3.5 Association between frequency of communication and parental discipline

The relationship between parental discipline and sexual communication frequency were examined with independent samples *t*-test by comparing mean communication frequency scores among parents who enforce restriction/control on their children as opposed to those who do not. Statistically significant difference in mean scores for strict parents ($M = 13.0$, $SD = 10.1$) and liberal parents ($M = 8.1$, $SD = 9.1$) was observed $t(344) = -6.7$ $p < 0.001$ (two-tailed). This suggests that parents who are strict on their children averagely discuss more sexual issues with their children compared to parents who are not strict. The difference represents a small effect size, $r = .12$. This suggests that in general, parents who enforce restrictions or discipline over their children are more likely to discuss more sexual topics and communicate more frequently with their children than their counterparts who do not impose restrictions.

4.3.6 Association between family connectedness and frequency of sexual communication

Family connectedness was measured with a single item with three response categories: “*not close*”, “*somewhat close*” and “*very close*”. ANOVA was employed to investigate the mean differences between the three groups. Inspection of the output generated by the ANOVA procedure revealed a violation of the homogeneity of variance assumption, because the Levene’s test was statistically significant $F(2, 820) = 4.4, p = .013$. Consequently, a more robust test of equality of means was required, and therefore the Welch’s F -statistic was employed. The results indicated a significant linear trend in the mean communication frequency among the three groups $F(2, 42.3) = 9.8, p < 0.001$, indicating that higher levels of family connectedness with child varies proportionately with frequency of parental communication.

In view of the violation of the variance assumption, coupled with significant variability in sample sizes among groups, the Games-Howell³⁶ test was used to conduct a post-hoc investigation to assess the differences in mean established by the F -Statistic. Results of the Games-Howell multiple comparison demonstrated significant mean differences, in which highly connected families were quite different in mean frequency score ($M = 13.1, SD = 10.8$), relative to those who said they were somehow connected ($M = 10.3, SD = 8.9$), and those who reported they were not connected ($M = 10.3, SD = 8.9$). In summary, higher family connectedness significantly influences the frequency of parental sexual communication with children.

³⁶ Games-Howell procedure is used as the most powerful post-hoc test when the equality of variance assumption is violated, and the sample sizes in the groups being compared are large and unequal (Field, 2009).

4.3.7 Determinants of parental sexual communication

One of the study objectives was to determine predictors of parental sexual communication. Parental frequency of communication was dichotomized by median split; where scores below the median were tagged ‘low communication’ and those above the median as ‘high communication’. Having established some relationships between selected family factors and sexual communication, hierarchical multiple logistic regression technique was used to examine prediction of parental sexual communication behaviours on the basis of selected family factors and individual parent characteristics. The analysis was stratified by sex of parent to assess which specific factors contribute to predicting sexual communication by mothers and fathers. This was done especially, since it had been demonstrated in Section 4.2.5 that mothers talk more to children than fathers. In both mothers and fathers regression procedures, Model 1 contained the control variables of age and level of educational attainment, while all the independent variables were entered in Model 2. Results of evaluation of assumptions of multicollinearity³⁷ and outliers through a procedure in linear regression revealed no violations because *tolerance*³⁸ values were way above 0.1. Compared to the constant-only models (with no predictors), the full models containing all predictors were statistically significant, $\chi^2(3) = 27.03, p < .001$ for mothers, and $\chi^2(3) = 16.64, p = 0.001$ for fathers, indicating the robustness of the models in distinguishing between parents who communicate less as opposed to those who communicate more.

The final model for mothers (Table 4.21) demonstrated a good fit with non-significant Hosmer and Lemeshow Test³⁹ ($\chi^2(8) = 5.55, p = .697$). The model correctly classified 69% of

³⁷ SPSS logistic regression does not have a procedure to test for multicollinearity. Consequently, linear regression procedure was used to request for collinearity statistics.

³⁸ Values less than 0.1 are an indication of possible multicollinearity (see Chapter 3, Section 3.12.2.3 for details).

³⁹ A model fit test in SPSS. A non-significant result ($p > .05$) indicates a good fit (see Section 3.12.2.3).

cases and explained 20% (Cox & Snell's R^2) and 26% (Nagelkerke's R^2) of the variance in parental communication. As presented in Table 4.21, five independent variables made significant unique contribution to the model (age, parent discipline, parent sexual knowledge, trustworthiness and family religiosity). The strongest predictor for parental communication was parent discipline, with an adjusted odds ratio (AOR) of 2.56; 95% confidence interval (CI) = (1.08 – 6.04). This suggests that parents who are disciplinarians and enforce restriction on their children's movements were 2.5 times more likely to discuss sexual issues with their children thus confirming the finding of the bivariate association (Section 4.3.5). Even though key family factors such as SES, family structure and family connectedness were all significant at the bivariate level, they did not make any significant contribution to the model.

Analogous to the model for mothers, the model for fathers (Table 4.21, right pane) was statistically significant in predicting fathers' communication. It explained 26% (Cox & Snell's R^2) and 35% (Nagelkerke's R^2) with very good classification (72%) of cases. The Hosmer and Lemeshow Test confirmed the model's goodness-of-fit, $\chi^2(8) = 9.80, p = .279$. The right pane of Table 4.21 presents the results of the regression procedure with all predictors. Five variables emerged as significant predictors of fathers' sexual communication with children. These variables included parent discipline, AOR = 2.15; 95% CI (1.08 – 4.29); parent sexual knowledge, AOR = 1.03; 95% CI (1.01– 1.07); trustworthiness, AOR = 1.50; 95% CI (1.28 – 1.74); parent permissiveness, AOR = 2.29; 95% CI (1.10 – 1.51) and family religiosity, AOR = 1.18; 95% CI (1.05 – 1.32). Even though in Model 1, the two control variables (age and education) were all statistically significant, their effects diminished in Model 2 when all the predictors were entered (see Table 4.21).

Table 4.20 Hierarchical multiple logistic regression predicting sexual communication stratified by sex of parent

Model/Predictors	Parental sexual communication					
	Mothers			Fathers		
	<i>B(SE)</i>	AOR	95% CI	<i>B(SE)</i>	AOR	95% CI
Model 1						
Constant	-2.26(0.53)			-2.34(0.75)		
Age	0.05(0.01)	1.05***	1.03 – 1.07	0.04(0.01)	1.03*	1.02 – 1.10
Education completed						
None (ref)	ref	1.00	ref	ref	1.00	ref
Basic	0.64(0.22)	1.90**	1.23 – 2.94	0.95(0.31)	2.57**	1.40 – 4.74
≥Secondary	0.91(0.34)	2.49**	1.29 – 4.81	1.28(0.36)	3.59***	1.78 – 7.26
Model 2						
Constant	-10.50(1.61)			13.42(2.04)		
Age	.049(.01)	1.05***	1.02 – 1.08	0.02(0.02)	1.02	0.99 – 1.05
Education completed						
None (ref)	ref	1.00	ref	ref	1.00	ref
Basic	0.33(.25)	1.39	0.86 – 2.25	0.71(0.37)	2.04	0.98 – 4.23
≥Secondary	-0.34(.45)	0.71	0.30 – 1.70	0.06(0.50)	1.06	0.40 – 2.81
Family structure						
Both	ref	1.00	ref	ref	1.00	ref
Single parent	0.18(0.24)	1.20	0.76 – 1.90	-0.18(0.43)	0.84	0.36 – 1.95
Other	-0.46(0.47)	0.63	0.25 – 1.58	-1.21(0.89)	0.30	.05 – 1.73
Socioeconomic status						
Poor	ref	1.00	ref	ref	1.00	ref
Middle	-0.25(0.25)	0.78	0.48 – 1.26	0.02(0.31)	1.03	0.56 – 1.88
Rich	0.22(0.36)	1.24	0.61 – 2.52	0.24(0.43)	1.27	0.54 – 2.97
Parent discipline	0.94(0.44)	2.56*	1.08 – 6.04	0.77(0.35)	2.15*	1.08 – 4.29
Parent sexual knowledge	0.03(0.01)	1.03*	1.01 – 1.05	0.03(0.02)	1.03*	1.01 – 1.07
Parent availability	0.04(0.05)	0.96	0.88 – 1.05	0.10(0.06)	0.91	0.80 – 1.02
Parent trustworthiness	0.27(0.07)	1.31***	1.16 – 1.49	0.40(0.08)	1.50***	1.28 – 1.74
Parent permissiveness	0.08(0.06)	1.09	0.97 – 1.22	0.26(0.08)	1.29***	1.10 – 1.51
Family religiosity	0.10(0.05)	1.11*	1.02 – 1.22	0.17(0.06)	1.18**	1.05 – 1.32
Family connectedness	0.17(0.23)	1.19	0.75 – 1.88	0.07(0.28)	1.07	0.62 – 1.86

Note: * $P < 0.05$. ** $P < 0.01$. *** $P < 0.001$.

Regression summary of final model for mothers: -2 Log likelihood = 505.186, Cox & Snell's $R^2 = .20$, Nagelkerke's $R^2 = .26$
 Regression summary of final model for fathers: -2 Log likelihood = 344.333, Cox & Snell's $R^2 = .26$, Nagelkerke's $R^2 = .35$
 B = Unstandardized regression coefficient; SE = Standard Error; AOR = Adjusted Odds Ratio, 95% CI = 95% Confidence Interval for the AOR.

4.4.0 Sexual risk behaviours and contraceptive use among young people

The study sought to investigate the influence of parental sexual communication on young people's sexual risk behaviours, including contraceptive use. Young people's self-reported sexual activities and contraceptive use were utilized to examine their sexual behaviour. While Sections 4.4.1 – 4.4.4 describe sexual behaviour of young people, Sections 4.5.0 – 4.5.8 deal with relationships between sexual behaviour and sexual communication.

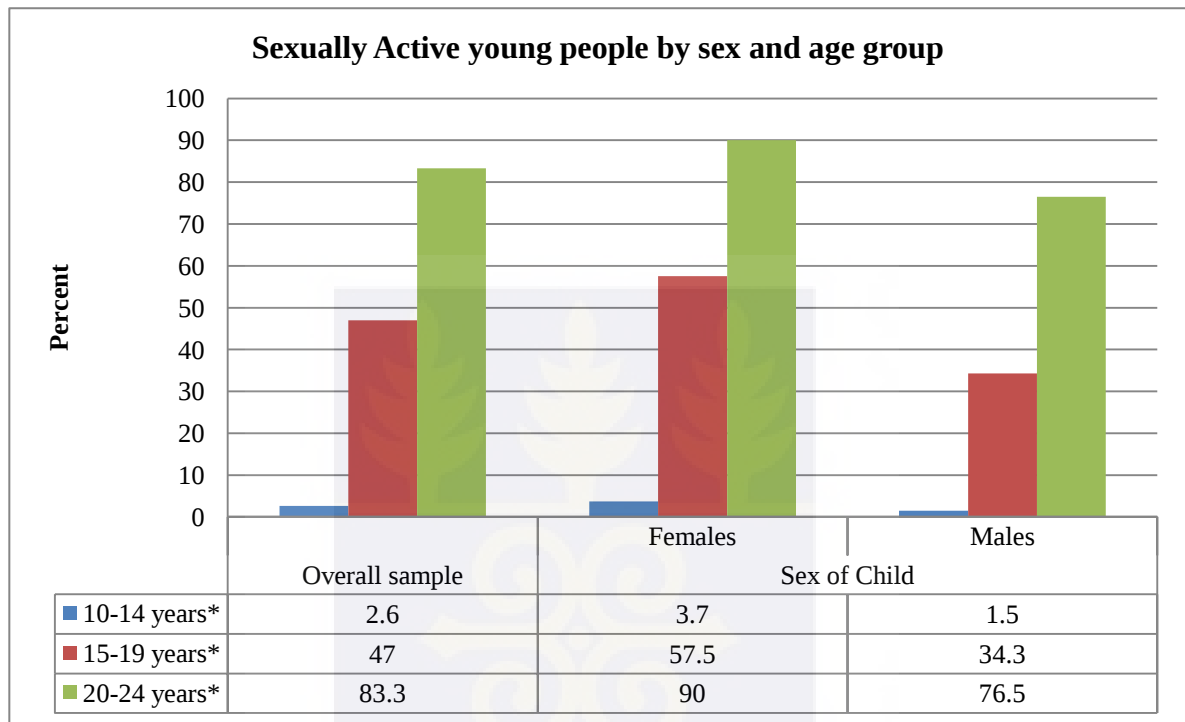
4.4.1 Profile of sexual activities among young people

Table 4.22 and Table 4.23, as well as Figure 4.7 present findings concerning sexual activities and contraceptive use among young people. Of the 823 young people participants, slightly less than half (46.4%) had ever been in a relationship, with young girls being the most likely than young boys to start a relationship (52.6% vs. 39.7%, $p < 0.001$). Of those who have ever been in a relationship ($n = 382$), a little over two-thirds (67.3%) comprising 71.1% females and 61.8% males reporting they currently had sexual partners.

Overall, about 43.1% ($n = 355$) of young people had ever had sexual intercourse. The median age at first sexual intercourse was 17 years; [Mean = 16.7, $SD = 2.2$]. There were slight differences with respect to median age at sexual initiation by gender and place of residence. The median age for sexual debut was 16 years for young girls and 17 years for boys. Also girls living in rural areas initiated intercourse at age 16 years, whereas their urban counterparts did so about a year later. Table 4.22 presents data on gender differences among sexually active young people by selected behavioural characteristics. The data shows that a higher proportion of young girls than boys were most likely to be sexually experienced (49.8% vs. 35.9%, $p < 0.001$). When the analysis was stratified by place of residence (Table 4.23), rural

young people were found to be more sexually experienced than their urban counterparts (53.1% vs. 46.9%).

Figure 4.7 Sexually active young people by sex and age group



Note: Chi-square test was used compare differences between females and males by age groups.

* $p < 0.01$, ** $p < 0.001$.

Additionally, Figure 4.7 indicates that sexual activities increase with age of young people. Overall only about 3% of young people had initiated sex between ages 10-14 years. By age 20 years, less than half of young people had had sex, but by age 25 years, 83% had been sexually experienced with significant gender differences according to age group.

About 60% of young people had experienced sexual pressure (demands to have sexual intercourse), mainly from friends. Males were more pressured than females, $\chi^2(2) = 11.77$, $p < 0.01$. Nearly two-thirds (66.1%), of sexually active young people indicated that they initiated sexual intercourse at their own will while 29.4% they were coerced. Significant differences exist between daughters and sons, $\chi^2(2) = 51.36$, $p < 0.001$.

4.4.2 Higher risk sexual activities

Nearly two-thirds (64.5%) of sexually experienced young people reported more than one lifetime sexual partner ($M = 2.9$, $SD = 2.7$), with significant differences between males and females $\chi^2(1) = 7.88$, $p < .01$; OR (95% CI) = 1.9 (1.22 – 3.06). The OR indicates that males were almost 2 times more likely to practice multiple sexual partnerships compared with females. Further analysis revealed that only urban residents differed significantly sex, with males being more likely to engage in multiple sexual partners than females (86.2% vs. 56.3%, $p < 0.001$). With respect to casual sexual activities, a little over a quarter (26.2%) of young people affirmed they had had sexual intercourse with a non-marital or non-cohabiting partner during the last 12 months preceding the survey. Again, about 14.4% had ever engaged in sex for cash or gift, of which females were more likely than males to offer sex for economic reasons $\chi^2(1) = 5.2$, $p < 0.05$ (see Table 4.22).

Similar conclusions were evident from the in-depth interviews with young people. For example, a 20 year old urban young girl who had had more than 5 lifetime sexual partners, and already a mother of one had this to say:

“I had slept (had intercourse) with 5 boys before I met my fiancé who is the father of my child. I was 17 years when I first had sex... the reasons were due to bad friends influence, lack of proper sex education and financial difficulties I faced in school. I have never used any form of protection before because I was ignorant and naïve of those things and the boys are also silent about the use of condom. If I had practiced protection, I would not have given birth by now”.

Additionally, a 21-year old boy living in one urban town was proud to report as follows:

“I have had eleven different girls, and even this year alone, I have slept with about three different girls”.

Table 4.21 Distribution of sexual activities among sexually active young people by sex

Behavioural characteristics	Sexually active young people			Chi-square test
	Total	Female	Male	
	Frequency (%)	Frequency (%)	Frequency (%)	
Ever had sexual intercourse	355 (43.1)	213 (49.8)	142 (35.9)	$\chi^2 (1) = 15.99, p < .001$
Currently in relationship				
No	100 (28.2)	55 (25.8)	45 (31.7)	$\chi^2 (1) = 1.45, p = .229$
Yes	255 (71.8)	158 (74.2)	96 (68.3)	
Circumstance of first intercourse				
Own will	234 (66.1)	109 (51.4)	125 (88.0)	$\chi^2 (2) = 50.88, p < .001$
Coerced	120 (33.9)	103 (48.6)	17 (12.0)	
Pressure to have intercourse				
No	143 (40.5)	101 (47.6)	42 (29.8)	$\chi^2 (2) = 11.77, p < .01$
A little	99 (28.0)	55 (25.9)	44 (31.2)	
A great deal	111 (31.4)	56 (26.4)	55 (39.0)	
Ever had sex for cash or gift				
No	304 (85.6)	175 (88.2)	129 (90.8)	$\chi^2 (1) = 5.2, p < .05$
Yes	51 (14.4)	38 (17.8)	13 (9.2)	
Ever prevented a pregnancy				
No	101 (29.8)	61 (29.5)	40 (30.3)	$\chi^2 (1) = 0.27, p = .870$
Yes	238 (70.2)	207 (70.2)	92 (69.7)	
Currently doing something to avoid pregnancy				
No	231 (69.0)	142 (69.6)	89 (67.9)	$\chi^2 (1) = .10, p = .747$
Yes	104 (31.0)	62 (30.4)	42 (32.1)	
Ever been pregnant or made someone pregnant				
No	182 (51.3)	94 (44.1)	88 (62.0)	$\chi^2 (1) = 110.85, p < .001$
Yes	173 (48.7)	119 (55.9)	54 (38)	
Number of times pregnant				
Once	82 (47.4)	57 (47.9)	25 (47.9)	$\chi^2 (1) = .038, p < .845$
≥ Two	91 (52.6)	62 (52.1)	29 (53.7)	
Outcome of first pregnancy				
Birth	84 (50.0)	75 (64.7)	9 (17.3)	$\chi^2 (1) = 35.03, p < .001$
Miscarriage	8 (4.8)	6 (5.2)	2 (3.8)	
Induced abortion	76 (45.2)	35 (30.2)	41 (78.8)	

Note: Chi-square test compares differences between females and males for each variable.

Table 4.22 Distribution of sexually active young people involved in sexual behaviours by place of residence

Behavioural characteristics	Sexually active young people			Chi-square test
	Total Frequency (%)	Rural Frequency (%)	Urban Frequency (%)	
Ever had sexual intercourse	355 (100)	142 (40)	213 (60)	–
Currently in relationship				
No	100 (28.20)	56 (29.2)	44 (27.0)	$\chi^2 (1) = .21, p = 0.650$
Yes	255 (71.8)	136 (70.8)	119 (73.0)	
Circumstance of first intercourse				
Own will	234 (66.1)	122 (63.9)	112 (63.9)	$\chi^2 (2) = .93, p = 0.628$
Coaxed	104 (29.4)	60 (31.4)	44 (27.0)	
Forced	16 (4.5)	8 (4.7)	7 (4.3)	
Pressure to have intercourse				
No	143 (40.5)	79 (41.6)	64 (39.3)	$\chi^2 (2) = 1.23, p = 0.540$
A little	99 (28.0)	56 (29.5)	43 (26.4)	
A great deal	111 (31.4)	55 (28.9)	56 (34.4)	
Ever had sex for cash or gift				
No	304 (85.6)	166 (86.5)	138 (84.7)	$\chi^2 (1) = .23, p = 0.632$
Yes	51 (14.4)	26 (13.5)	25 (15.30)	
Condom use at first intercourse				
No	221 (62.3)	127 (66.1)	94 (57.7)	$\chi^2 (1) = 2.70, p = 0.101$
Yes	134 (37.7)	65 (33.9)	69 (42.3)	
Contraceptive use in last 3 months				
Never	164 (46.2)	104 (54.2)	60 (36.8)	$\chi^2 (2) = 15.64, p < 0.001$
Sometimes	158 (44.5)	67 (34.9)	91 (55.8)	
Always	33 (9.3)	21 (10.9)	12 (7.4)	
Ever prevented a pregnancy				
No	101 (29.8)	59 (32.6)	42 (26.6)	$\chi^2 (1) = 1.46, p = 0.227$
Yes	238 (70.2)	122 (67.4)	116 (73.4)	
Currently doing something to avoid pregnancy				
No	104 (31.0)	49 (27.2)	55 (35.5)	$\chi^2 (1) = 2.66, p = 0.103$
Yes	231 (69.0)	131 (72.8)	100 (64.5)	
Ever been pregnant or made someone pregnant				
No	182 (51.3)	103 (53.6)	79 (48.5)	$\chi^2 (1) = .95, p = 0.331$
Yes	173 (48.7)	89 (46.4)	84 (51.5)	

Note: Chi-square test compares differences between rural and urban for each variable.

4.4.3 Pregnancy and outcome

Almost half (48.7%) of the sexually experienced young people reported that they had ever been pregnant or made someone pregnant. In general, about a quarter (25.6%) of sexually active young people had been pregnant more than once. Of those who ever reported pregnancy ($n=173$), more than half (52.6%) had been pregnant more than once ($M = 2.0$, $SD = 1.2$). Over 95% of all those who reported pregnancy stated that they did not intend to be pregnant at the time they became pregnant or made someone pregnant. Table 4.24 presents details of mean age at pregnancy and number of pregnancies by selected background characteristics.

Table 4.23 Differences in report of pregnancy

Differences in mean age at first pregnancy and mean number of lifetime pregnancies by selected background characteristics

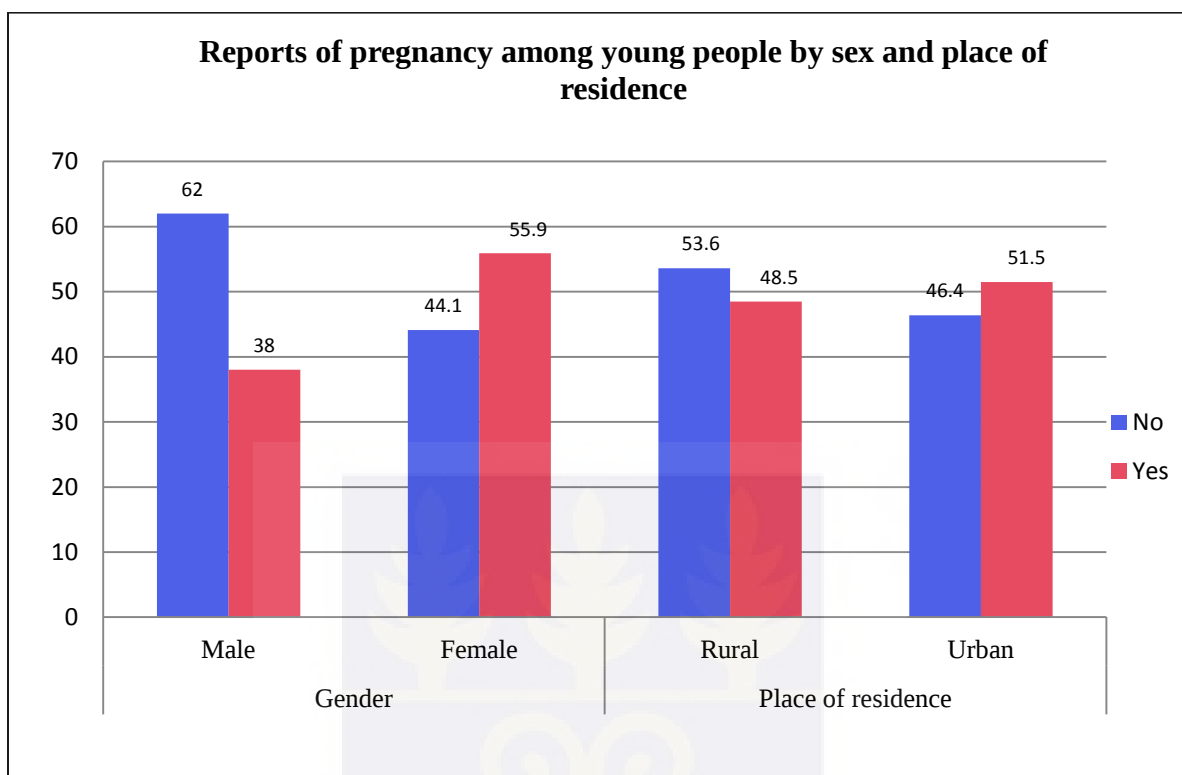
Characteristic	Age at first pregnancy		Number of pregnancies	
	Mean (SD)	Statistical test	Mean (SD)	Statistical test
Sex				
Males	18.59 (1.94)	$t(171) = 2.46, p < 0.05$	2.24 (1.45)	$t(171) = 2.17, p < 0.05$
Females	17.75 (2.16)		1.82 (1.05)	
Place of residence				
Rural	17.97 (2.24)	$t(171) = -1.31, p = 0.19$	1.83 (1.01)	$t(171) = -.29, p = 0.77$
Urban	18.06 (2.00)		2.07 (1.38)	
Age groups				
10 – 14 years	13.50 (.71)	$F(2, 170) = 45.64, p < 0.001$	1.50 (.71)	$F(2, 170) = 3.96, p < 0.05$
15 – 19 years	16.45 (1.30)		1.60 (.92)	
20 – 24 years	18.89 (1.91)		2.13 (1.31)	
SES				
Poor	18.05 (2.26)	$F(2, 170) = .95, p = 0.39$	1.83 (1.00)	$F(2, 170) = 0.48, p = 0.62$
Middle	17.78 (2.00)		2.01 (1.35)	
Rich	18.37 (2.09)		2.03 (1.28)	
Family structure				
Both parents	18.06 (2.19)	$F(2, 170) = .22, p = 0.80$	2.02 (1.27)	$F(2, 170) = 1.67, p = 0.19$
Single parents	17.96 (1.94)		1.85 (1.06)	
Others	17.50 (2.43)		1.17 (.41)	

t = Independent samples t -test; F = One-way analysis of variance

The overall sample median (mean) age at first pregnancy for both sexes was 18.0 years ($M = 18.01$, $SD = 2.1$). When the data was disaggregated by gender, female median age at first pregnancy of 17 years compared to 18 years for males (not shown). As shown in Table 4.24, an independent samples t -test showed a statistically significant difference between young boys and girls, $t(171) = 2.46$, $p < 0.05$; with girls becoming pregnant around age 17 years. Perhaps, this result is a reflection of the fact that girls initiate sex earlier than boys (Section 4.4.1). As expected, young adolescents, older adolescents and young people demonstrated significant differences in both mean age at pregnancy $F(2, 170) = 45.64$, $p < 0.001$ and the mean number of pregnancies $F(2, 170) = 3.96$, $p < 0.05$. Selected characteristics such as place of residence, SES and family structure, though demonstrated some differences in both mean age at first pregnancy and mean number of pregnancies, the differences were not statistically significant (see Table 4.24).

4.4.3.1 Differences in report of pregnancy by gender, and place of residence

Illustrated in Figure 4.15 are the details of χ^2 analyses of reports of pregnancy among young people, by gender and place of residence. Report of pregnancy did not significantly differ among rural and urban young people (48.5% vs. 51.5%, $p > 0.05$). On the other hand, higher proportion of females reported pregnancy compared with males who had ever made someone pregnant (55.9% vs. 38.0%, $p = 0.001$). This result was subjected to further χ^2 analysis, stratified by place of residence to determine whether there was any rural-urban disparity. The results showed gender differences among young people living in rural areas only, with more females reporting pregnancy than males (58% vs. 27.4%, $p < 0.001$). There was no difference among urban residents.

Figure 4.8 Report of pregnancy among young people by sex and place of residence

Overall, about half (50.3%) of the pregnancies resulted in live births, while 45.5% terminated the pregnancy through induced abortion (Table 4.22). When place of residence was added as a layer in the model, rural young girls were more likely to end their pregnancies with births compared to urban young girls, whereas urban young boys were more likely to ask their partners to abort a pregnancy than their rural counterparts (78.1% vs. 39.6%, $p < 0.001$).

4.4.4 Contraceptive use

Contraceptive practice was assessed in terms of condom use at first sexual intercourse, frequency of general contraceptive use and at last sexual encounter. As shown in Table 4.25, more than a third (37.7%) of sexually active young people reported using the condom the first time they had sexual intercourse. No significant differences were observed by gender and

place of residence. The use of condom at first intercourse was mainly decided by the young person concerned (47.7%), followed by decision from partner (33.3%). The results indicates that females largely depended on their males partners for decisions regarding condom use $\chi^2(2) = 28.01, p < 0.001$.

Almost half (46.3%) young people reported they never used any form of contraception during sexual intercourse within the previous 3 months. A higher proportion of female were more likely to report non-contraception compared to males (50.2% vs. 40.1%, $p < 0.01$). Only 9.3% reported they always used the condom anytime they had sexual intercourse, with young girls reporting higher regular use, $\chi^2(2) = 6.84, p < 0.05$ (Table 4.25).

Contraceptive use at last sexual intercourse was about 30%. Of all those who reported contraceptive use at last intercourse, the male condom was the most popular method used by 63.1%, followed by the oral contraceptive pill (16.5%), emergency contraceptive (6.8%). The most unpopular method reported was the female condom (0.1%). As depicted in Table 4.25, over 70% of sexually active young people did not use any method of contraception the last time they had intercourse. The reasons cited for non-contraception included “prevents enjoyment” (41%), “it was not necessary” (27.3%), “did not think of it” (23.3%), “not available” (6%) and “don’t know” (2.4%). There were no significant differences in reasons by sex.

Table 4.24 Distribution of contraceptive use among sexually active young people by sex

Variable	Total	Female	Male	Statistical test
	Frequency (%)	Frequency (%)	Frequency (%)	
Condom use at first intercourse				
No	221 (62.3)	136 (63.8)	85 (59.9)	$\chi^2 (1) = 0.58, p = 0.447$
Yes	134 (37.7)	77 (36.4)	57 (40.1)	
Who suggested contraceptive use				
	83 (47.7)	37 (33.0)	46 (74.2)	$\chi^2 (2) = 28.01, p < 0.001$
Myself	58 (33.3)	50 (44.6)	8 (12.9)	
Partner	33 (19.0)	25 (22.3)	8 (12.9)	
Both				
Frequency of contraceptive use in previous 3 months				
Never	164 (46.2)	107 (50.2)	57 (40.1)	$\chi^2 (2) = 6.84, p < 0.05$
Sometimes	158 (44.5)	83 (39.0)	75 (52.8)	
Always	33 (9.3)	23 (10.8)	10 (7.0)	
Contraceptive use at last intercourse				
No	249 (70.1)	147 (69.0)	102 (71.8)	$\chi^2 (1) = 0.32, p = 0.447$
Yes	106 (29.9)	66 (31.0)	40 (28.2)	
Method of contraceptive used				
Male condom	65 (63.1)	30 (46.9)	35 (89.7)	
Oral contraceptive pill	17 (16.5)	17 (26.6)	0 (0)	
Emergency contraceptive	7 (6.8)	5 (7.8)	2 (5.1)	
Periodic Abstinence	7 (6.8)	7 (10.9)	0 (0)	
Withdrawal	3 (2.9)	1 (1.6)	2 (5.1)	
Injectable	3 (2.9)	3 (4.7)	0 (0)	
Female condom	1 (.1)	1 (1.6)	0 (0)	
Reason for not using contraceptive at last intercourse				
Prevents enjoyment	102 (41)	55 (37.4)	47 (46.1)	$\chi^2 (4) = 4.61, p = 0.330$
It was not necessary	68 (27.3)	41 (27.9)	27 (26.5)	
Did not think of it	58 (23.3)	40 (27.2)	18 (17.6)	
Not available	15 (6.0)	7 (4.8)	8 (7.8)	
Don't know	6 (2.4)	4 (2.7)	2 (2.0)	

4.4.4.1 Awareness of family planning

Table 4.25 Heard about family planning

Distribution of sexually active and non-sexually active young people who reported awareness of family planning

Response	Sexually active		Non-sexually active	
	Frequency	Percent	Frequency	Percent
No	28	7.9	225	48.6
Yes	327	92.1	238	51.4
Total	355	100.0	463	100.0

Table 26 shows that almost all sexually active young people (92%) have heard about family planning, while just about half (51%) of non-sexually active is aware. Related to the above, Table 27 shows that the main source of information on family planning for the sexually active young people are the media (32%), school teachers (28%) and community/health facility (21%). The non-sexually active young people reported school teachers (51%) and the media (25%) as the two main sources of information about family planning.

Table 4.26 Source of information on family planning

Frequency and percent of sexually active and non-sexually active young people who indicated their sources of information on family planning

Source	Sexually active		Non-sexually active	
	Frequency	Percent	Frequency	Percent
Media	118	32.4	67	25.2
School teachers	101	27.7	135	50.8
Community education/health facility	75	20.6	20	7.5
Friends	32	8.8	12	4.5
Parent /family	31	8.5	24	9.0
PPAG	3	0.8	2	0.8
Books	4	1.1	6	2.3
Total	364	100.0	266	100.0

4.5.0 Influence of sexual communication on young people's sexual risk behaviours

Two levels of relationships were examined here:

- Correlations among the process, content and frequency of communication and selected sexual behaviour outcomes - age at sexual intercourse, lifetime number of sexual partners, condom use at first intercourse and ever been pregnant or made someone pregnant.
- Multiple regressions to predict factors that influence sexual communication.

4.5.1 Correlation matrix among selected variables

The associations between the process, content and frequency of parent-child sexual communication and sexual risk-taking behaviours were assessed using the Pearson product-moment correlation coefficients (r). Preliminary investigations regarding the assumptions of normality, linearity and homoscedasticity that underlie the Pearson's correlation were performed to ensure there were no violations.

As presented in Table 4.28, all the communication variables highly correlated among themselves. For example, young people's report of frequency of communication with their mothers was positively and significantly associated with the content (number of topics discussed) of communication $r = .96, p < 0.01$, openness in communication $r = .48, p < 0.01$, but negatively related with comfort of communication $r = -.15, p < 0.01$. The coefficient of determination, R^2 explains about 92% of the number of topics discussed and 23% of the variability between openness and frequency of communication. A similar trend was observed in the case of communication with fathers. Young people's report of frequency of communication with their fathers was positively correlated with topics discussed $r = .94, p <$

0.01; openness $r = .32$, $p < 0.01$, but inversely related to communication easiness $r = -.14$, $p < .01$. Furthermore, the timing of communication was positively associated with frequency and content of communication for both mothers and fathers; openness of communication. This suggests that higher frequency, content, and more openness in communication are associated with on-time discussions. However, timing of communication was related negatively with the comfort of communication, $r_{pb} = -.30$, $p < 0.01$.

Table 4.27 Correlation matrix among selected variables

Correlation coefficients for sexual communication and sexual behaviours among young people

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Mother communication	1.00										
2. Father communication	.49**	1.00									
3. Mother content	.96**	.47**	1.00								
4. Father content	.50**	.94**	.54**	1.00							
5. Openness	.48**	.32**	.51**	.41**	1.00						
6. Easiness of communication	-.15**	-.14**	-.14**	-.13**	-.08*	1.00					
7. Timing of communication [†]	.43**	.29**	.45**	.33**	.24**	-.30**	1.00				
8. Age at sexual intercourse	.03	.07	-.01	.05	.02	-.14*	.28**	1.00			
9. Lifetime sexual partners	.02	.07	.06	.16**	.15**	.17**	-.17**	-.23**	1.00		
10. Condom use at first intercourse [†]	-.04	-.05	-.07	-.11	-	-.08	-.02	.08	-.07	1.00	
11. Ever been pregnant or made someone pregnant [†]	.09	-.05	.13*	.03	.09	.13*	-.08	-.00	.28**	-.17**	1.00

* $p < 0.05$ (2-tailed); ** $p < 0.001$ (2-tailed). [†] = Point-biserial correlation

In addition, Table 4.28 shows that young people who reported more openness, higher content and higher frequency of communication with mothers were more likely to report more openness, more content and higher frequency with their fathers as well. Taken together, young people's recall of communication with both parents suggests that the more open parents are perceived to be, the higher the content and frequency of communication they deliver to children. Conversely, higher level of easiness during the process of communication is associated with discussion of fewer topics and low frequency of communication.

With regards to communication and sexual behaviours, the results indicate that content and process of communication made significant contribution in predicting risky behaviours such as age at intercourse, lifetime number of sexual partners, condom use at first intercourse and reports of pregnancy. There was a negative correlation between child's report of communication easiness and age at sexual intercourse, $r = -.14, p < 0.05$, but was positively associated with lifetime sexual partners, $r = .17, p < 0.01$ and report of pregnancy $r_{pb} = .13, p < 0.05$. Reports of mothers' content was significantly related with child's reports of having been pregnant or made someone pregnant, $r_{pb} = .13, p < 0.05$, while the content of father communication was significantly associated with lifetime number of sexual partners, $r = .16, p < .01$. Frequency of communication with both mothers and fathers did not relate with any of the risk behaviour outcomes.

4.5.2 Relationship between sexual communication and sexual behaviour

One of the study's main objectives was to find out whether parent-child sexual communication influences sexual behaviours among young people in the Brong Ahafo region. Six specific sexual risk behaviours [(1) *ever had sexual intercourse* (2) *age at sexual*

initiation (3) lifetime number of sexual partners (4) condom use at first sexual intercourse (5) contraceptive use in past three months and (6) ever been pregnant or made someone pregnant] were investigated to determine what factors predict these outcomes. Hierarchical multiple regression techniques were used to assess to what extent child's report of five communication variables, that is, mother communication, father communication timing of communication, openness of communication and easiness of communication.

4.5.3 Association between age at sexual intercourse and communication

A hierarchical multiple linear regression procedure was employed to assess predictors of age at first sexual intercourse. Separate models were developed for young boys and young girls. Preliminary analysis was conducted to examine the assumptions of normality, linearity, homoscedasticity and multicollinearity. In the bivariate correlations among the independent and selected sexual behavioural dependent variables (Table 4.29), multicollinearity was found to be evident among mother's frequency of communication vs. mother content ($r = .96$) on one hand, and father's frequency of communication vs. father content ($r = .94$) on the other hand. The frequency of communication was preferred to content of communication, because extant studies have revealed that frequency if communication influences sexual behaviour more that content of communication. Consequently, two content variables (content of mother communication and content of father communication) were removed from the models. In both models for males and females, young people's age, current school attendance and place of residence were entered in Step 1 as control variables. In the model for females, the three covariates together explained 54% of the variance in age at first sexual intercourse, $F(3, 175) = 69.70, p < 0.001$. After entry of mother communication, father communication, timing of communication, Easiness of communication and openness of communication, $F(8, 170) =$

41.92, $p < 0.001$; $R = .82$, $R^2 = .66$. The five variables contributed additional 12% of the variance in age at first sex after controlling for age and school status. Altogether, the model predicted more than 66% of the variability in age at first sex. Table 4.29 presents details of the model. In the final model, five variables remained statistically significant (age, $\beta = 1.00$, $p < 0.001$; currently in school, $\beta = .30$, $p < 0.001$; place of residence, $\beta = .13$, $p < 0.01$; mother frequency, $\beta = -.39$, $p < 0.001$; and timing of communication, $\beta = .28$, $p < 0.001$). The adjusted R^2 value suggests that about 65% of the variability in age at first sexual debut is predicted by the five variables that were significant.

On the other hand, the model for sons (Table 4.29, right panel) revealed that the covariates at Step 1, explained about 34% of the variance in sons' age at first sexual intercourse, $F(3, 129) = 22.29$, $p < .001$. At Step 2 with all the communication variables in the equation, the total variance explained by the model was 56%, $F(8, 124) = 19.50$, $p < 0.001$, change in $R^2 = .22$. Three out of the eight variables in the final model were statistically significant. These included age, mothers' frequency of communication and timing of communication.

It is important to note that for both sons and daughters, mothers' communication frequency was associated with earlier age at sexual initiation, whereas on-time communication and age were related with older age at sexual initiation. Again, for daughters, place of residence and being currently in school were positively related to age at sexual initiation.

Table 4.28 Hierarchical multiple linear regression predicting age at sexual initiation stratified by sex of child

Step/Variable	Age at sexual initiation			
	Daughters		Sons	
	<i>B</i> (<i>SE</i>)	β	<i>B</i> (<i>SE</i>)	β
Step 1				
Constant	6.56(0.82)		10.49(1.06)	
Age	0.49(0.04)	.89***	0.37(0.05)	.67**
Currently in school	1.46(0.31)	.32***	0.87(0.42)	.18*
Place of residence	0.50(0.22)	.12*	-0.22(0.32)	-.05
Step 2				
Constant	5.19(0.86)		8.86(1.09)	
Age	0.56(0.04)	1.00***	0.40(0.04)	.73**
Currently in School	1.36(0.28)	.30***	0.66(0.36)	.14
Place of residence	0.55(0.20)	.13**	0.09(0.27)	.02
Frequency of mother communication	-0.08(0.01)	-.39***	-0.14(0.03)	-.49**
Frequency of Father communication	0.00(0.02)	.01	0.03(0.03)	.08
Timing of communication	1.24(0.22)	.28***	2.34(0.33)	.53**
Easiness of communication	0.03(0.02)	.07	0.04(0.03)	.08
Openness of communication	0.03(0.03)	.06	0.01(0.04)	.01

Note: * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Model for daughters: $R^2 = 0.54$ for Step 1, $\Delta R^2 = 0.12$ for Step 2 ($p < 0.001$).

Model for sons: $R^2 = 0.58$ for Step 1, $\Delta R^2 = 0.22$ for Step 2 ($p < 0.001$).

B = unstandardized regression coefficient; β = standardized regression coefficient; *SE* = standard error

Dependant variable = age at sexual initiation.

4.5.4 Relationship between lifetime number of sexual partners and sexual communication

The ability of five communication variables (mother communication, father communication, mother content, father content, timing of communication, openness of communication and easiness of communication) to predict lifetime number of sexual partners among young people was examined using hierarchical multiple regression technique. Initial evaluation of the assumptions of normality, linearity, multicollinearity and heteroscedasticity by screening

through residual⁴⁰ scatterplots and preliminary screen runs revealed some violations. For example, the dependent variable (lifetime number of sexual partners) was not normally distributed, because the data was positively skewed (see Appendix 10, Chart A). The dependent variable was thus transformed by taking the logarithm of the raw scores in order to reduce skewness and improve normality as recommended by Tabachnick and Fidell (2007). Appendix 10, Chart B shows the residual scatterplots before and after transformation. Additionally, casewise diagnostics showed that five cases had standardized residual values greater than 3.3 (the recommended threshold for problematic outliers). However, the Cook's Distance values for these cases were all less than 1, and thus were not likely to have undue influence on the model. For the assumption of heteroscedasticity, Tabachnick and Fidell (2007, p. 127) suggest that the presence of heteroscedasticity does not invalidate the analysis so much as to weaken the results.

Table 4.30 presents the full regression models for daughters and sons. In the models for both daughters and sons, the three control variables (age, currently in school and place of residence) were entered at Step 1, while all the five communication measures were entered in Step 2.

The model for daughters predicted about 6% of the variance in (log of) lifetime number of sexual partners at Step 1, $F(3, 175) = 3.52, p < 0.05$. The entry of the 5 predictors in Step 2 resulted in significant model, $F(8, 170) = 5.22, p < 0.001$, with $R = .44$ and R^2 of .20. These measures together contributed an additional 14% (R^2 change = .14) of the variability in (log of) lifetime sexual partners after controlling for age and sex. The final model revealed that

⁴⁰ Differences between obtained and predicted dependent variable scores

three variables were statistically significant, with the following beta values representing unique contributions to the prediction (age, $\beta = .22, p < 0.05$, easiness of communication $\beta = .31, p < 0.001$ and communication openness $\beta = .23, p < 0.01$).

The model for sons slightly improved the prediction of lifetime number of sexual partners compared with the model for daughters (Table 4.30). For the covariates in Step 1, R for regression was significantly different from zero, $F(3, 129) = 6.59, p < .05; R^2 = .13$, with only place of residence being statistically significant, $\beta = .33, p < 0.01$. With the inclusion of the five communication variables in Step 2, the regression was still significantly different from zero, $F(8, 124) = 6.85, p < 0.001$. Altogether R^2 was .31, with a change in R^2 of .17. Three communication variables (mother communication, timing of communication and easiness of communication) in addition to place of residence were statistically significant (Table 4.30).

The data shows that seemingly different factors predict lifetime number of sexual partners for both daughters and sons. For daughters, the process of communication, (openness and easiness) and age are important factors that determine their lifetime number of sexual partners, whereas for sons, mother communication, timing of communication, easiness of communication and place of residence predicted the lifetime number of sexual partners.

Table 4.29 Hierarchical multiple linear regression predicting lifetime sexual partners stratified by sex of child

Step/Variable	Lifetime number of sexual partners			
	Daughters		Sons	
	<i>B</i> (<i>SE</i>)	β	<i>B</i> (<i>SE</i>)	β
Step 1				
Constant	0.19(0.15)		-0.02(0.19)	
Age	0.01(0.01)	.11	0.01(0.01)	.10
Currently in school	-0.09(0.06)	-.16	-0.03(0.08)	-.04
Place of residence	0.01(0.04)	.01	0.23(0.06)	.33**
Step 2				
Constant	-0.26(0.16)		-0.25(0.22)	
Age	0.02(0.01)	.22*	0.01(0.01)	.11
Currently in School	-0.03(0.05)	-.06	0.00(0.07)	.00
Place of residence	-0.01(0.04)	-.01	0.19(0.05)	.27**
Mother communication	0.00(0.00)	-.06	0.01(0.01)	.27*
Father communication	0.00(0.00)	-.05	0.00(0.01)	-.05
Timing of communication	-0.04(0.04)	-.07	-0.25(0.07)	-.35***
Easiness of communication	0.02(0.01)	.31***	0.01(0.01)	.17*
Openness of communication	0.02(0.01)	.23**	0.01(0.01)	.17

Note: * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Model for daughters: $R^2 = .06$ for Step 1, $\Delta R^2 = .14$ for Step 2 ($p < 0.001$).

Model for sons: $R^2 = .13$ for Step 1, $\Delta R^2 = .17$ for Step 2 ($p < 0.001$).

B = unstandardized regression coefficient; β = standardized regression coefficient; *SE* = standard error

Dependent variable = Lifetime sexual number of sex partners

4.5.5 Association between communication and ever had sexual intercourse

Table 4.31 presents the results of two hierarchical multiple logistic regressions that assessed the predictive ability of communication variables on the likelihood of ever engaged in sexual intercourse by daughters and sons. The predictor variables were entered in two sets. The control variables of age, currently in school and place of residence were entered first, followed

by the communication variables (mother communication, father communication, timing of communication, easiness of communication and openness of communication).

For the model for daughters, the full model containing all predictors was statistically significant $\chi^2 (8) = 239.42, p < 0.001$, indicating that the model was able to differentiate between young people who had ever had sexual intercourse and those who have not yet experienced intercourse. The full model explained between 49% (Cox & Snell's R^2) and 65% (Nagelkerke's R^2) of the variability in sexual intercourse status, and correctly classified 83% of cases. The Hosmer and Lemeshow test indicated that the model was robust in its prediction, $\chi^2 (8) = 15.415, p = 0.052$.

As presented in Table 4.31, three communication measures (mother communication, timing of communication and openness in communication) were statistically significant. The frequency of mother communication recorded an adjusted odds ratio (AOR) with 95% confidence interval (CI) of 1.11 (1.07 – 1.16), suggesting that the odds of ever had sexual intercourse are increased by 11% with increases in mothers frequency of communication. Similarly, timing of communication, AOR = .13; 95% CI (0.10 – 0.30), indicates that young girls who received on-time sexual communication were about 87% less likely to have ever had sexual intercourse. Lastly, report of openness of communication, AOR = .94; 95% CI (0.89 - 0.99), was also a predictor of ever had sexual intercourse. The odds ratio of .94 implies that young people who reported receiving more open communication with parents were marginally (6%) less likely to have experienced sexual intercourse.

Table 4.30 Hierarchical multiple logistic regression of ever had sexual intercourse stratified by sex of child

Model/Predictors	Ever had sex					
	Daughters			Sons		
	<i>B(SE)</i>	AOR	95% CI	<i>B(SE)</i>	AOR	95% CI
Model 1						
Constant (β_0)	-7.15(1.17)			-9.43(1.19)		
Age	0.48(0.06)	1.62***	1.43–1.83	0.52(0.06)	1.68*	1.49–1.89
Currently in school	-0.82(0.37)	0.44*	0.21–0.91	-0.53(0.34)	0.59	0.30–1.16
Place of residence	-0.77(0.30)	0.46*	0.26–0.84	.032(0.31)	1.03	0.56–1.90
Model 2						
Constant (β_0)	-6.72(1.50)			-10.68(1.61)		
Age	0.52(0.07)	1.68***	1.46–1.93	0.57(0.07)	1.77*	1.54–2.03
Currently in school	-0.54(0.41)	0.58	0.26–1.31	-0.40(0.39)	0.67	0.32–1.43
Place of residence	-0.93(0.33)	0.40**	0.20–0.76	-0.33(0.35)	0.72	0.37–1.42
Frequency of mother communication	0.10(0.03)	1.11***	1.05–1.16	0.14(0.04)	1.15*	1.07–1.23
Frequency of father communication	-0.01(0.03)	0.99	0.9–1.05	-0.04(0.03)	0.96	0.90–1.02
Timing of communication	-2.05(0.40)	0.13***	0.06–0.28	-1.59(0.44)	0.20*	0.09–0.48
Easiness of communication	-0.01(0.04)	0.99	0.91–1.07	0.05(0.04)	1.05	0.97–1.13
Openness of communication	-0.09(0.04)	0.91*	0.84–0.99	-0.02(0.04)	0.98	0.90–1.07

Note: * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Regression summary of final model for daughters: -2 Log likelihood = 254.057, Cox & Snell's $R^2 = .49$, Nagelkerke's $R^2 = .65$

Regression summary of final model for sons: -2 Log likelihood = 242.679, Cox & Snell's $R^2 = .47$, Nagelkerke's $R^2 = .65$

B = Unstandardized regression coefficient; SE = Standard Error; AOR = Adjusted Odds Ratio, 95% CI = 95% Confidence Interval for the AOR.

With regards to the model for sons (Table 4.31), the final model after the inclusion of all the communication variables, controlling for age, currently in school and place of residence resulted in a significant test, model $\chi^2 (8) = 231.56$, $p < 0.001$, and it correctly classified 83% of those who had ever had sex compared to those who have never had sex. The Hosmer and Lemeshow test was not significant, $\chi^2 (8) = 15.42$, $p = 0.543$, suggesting a strong model; and explaining 47% (Cox & Snell R^2) and 65% (Nagelkerke R^2) of the variation in ever had sex.

Table 4.31 shows that three independent variable (age, mother communication and timing of communication) made statistically significant contributions in predicting sons ever engagement in sex. The strongest predictor of ever had sex was timing of communication, AOR = .20; 95% CI (.09 - .48), indicating that sons were 80% less likely to have ever initiated sexual intercourse if they receive on-time sexual communication from parents. Similarly, age of child AOR = 1.77; 95% CI (1.49 – 1.89), signify that the odds of increase in a young person's age is associated with about 77% chances of ever having sexual intercourse. Finally, mother communication, AOR = 1.15; 95% CI (1.07 – 1.22) indicates that mother communication is associated with about 15% likelihood of ever had sexual intercourse.

4.5.6 Association between communication and condom use at first sexual intercourse

The predictors of condom use at first sexual intercourse were assessed using hierarchical multiple logistic regression technique stratified by gender of child. The results are presented in Table 4.32. For both regressions, the control variables (age and currently in school) were entered first, followed by the five independent communication variables. Predictions in the two regressions were unimpressive. Detailed analyses for daughters and sons are presented below.

Table 4.31 Hierarchical multiple logistic regression of condom use at first sex stratified by sex of child

Model/Predictors	Condom use at first sex					
	Daughters			Sons		
	B(SE)	AOR	95% CI	B(SE)	AOR	95% CI
Model 1						
Constant (β_0)	-0.84(1.28)			-1.51(1.56)		
Age	0.01(0.06)	0.90	1.01 – 1.14	0.07(0.07)	1.07	0.93 – 1.23
Currently in school	0.50(0.36)	0.82	1.64 – 3.31	-0.58(0.38)	0.56	0.27 – 1.18
Model 2						
Constant (β_0)	-0.14(1.45)			0.58(1.85)		
Age	0.00(0.06)	1.00	0.89 – 1.13	0.07(0.08)	1.07	0.92 – 1.24
Currently in school	0.41(0.37)	1.51	0.74 – 3.09	-0.50(0.41)	0.61	0.27 – 1.37
Frequency of mother communication	0.00(0.02)	1.00	0.96 – 0.03	0.09(0.03)	1.10*	1.02 – 1.18
Frequency of father communication	-0.02(0.03)	0.98	0.92 – 1.03	-0.05(0.03)	0.96	0.90 – 1.02
Timing of communication	0.01(0.34)	1.01	0.52 – 1.95	-0.32(0.42)	0.72	0.32 – 1.64
Easiness of communication	-0.05(0.04)	0.96	0.89 – 1.03	-0.05(0.04)	0.95	0.87 – 1.03
Openness of communication	0.01(0.04)	1.01	0.93 – 1.09	-0.18(0.06)	0.84**	0.75 – 0.93

Note: * $p < 0.05$. ** $p < 0.001$.

Regression summary of final model for daughters: -2 Log likelihood = 230.80, Cox & Snell's $R^2 = 0.028$, Nagelkerke's $R^2 = 0.037$.

Regression summary of final model for sons: -2 Log likelihood = 160.13, Cox & Snell's $R^2 = 0.14$, Nagelkerke's $R^2 = 0.19$

B = Unstandardized regression coefficient; SE = Standard Error; AOR = Adjusted Odds Ratio, 95% CI = 95% Confidence Interval for the AOR.

The Hosmer and Lemeshow goodness-of-fit test for the model for daughters was not statistically different from zero, $\chi^2(8) = 15.15$, $p = 0.06$, indicating a good fit. The model correctly classified 61% of cases overall. After inclusion of all the independent variables in Model 2, the regression proved to have a good fit, $\chi^2(8) = 7.20$, $p > 0.05$, however, it was only able to explain 3% (Cox & Snell's R^2) and 4% (Nagelkerke's R^2) of the variation in condom use at first sexual intercourse. In the final model, none of the variables was statistically significant (Table 4.32). Thereafter, individual variables in the model were run separately against condom use at first sex by girls, but none proved to be statistically significant. The

findings suggest that variables that predict young girls' condom use are probably not linked with parental sexual communication.

With respect to the model for males, the Omnibus test [$\chi^2(2) = 4.60, p > 0.05$] was not significant at Model 1. This suggests that the model performed poorly compared to the constant-only model (with no predictors in the equation). It predicted about 3% (Cox & Snell's R^2) and 5% (Nagelkerke's R^2). When the five communication measures were introduced in Model 2, the regression proved worthwhile with significant Omnibus test, $\chi^2(7) = 20.25, p < 0.01$. This was supported by a non-significant Hosmer and Lemeshow test $\chi^2(8) = 7.90, p > 0.05$. The model as a whole explained 14% (Cox & Snell's R^2) and 19% (Nagelkerke's R^2) of the variance in condom use at first sex; and correctly classified 64% cases. As presented in Table 4.32, only two variables (mother communication and openness in communication) were statistically significant. Mother communication recorded an AOR of 1.10, 95% CI (1.02 – 1.17) suggesting that young boys who reported that their mothers had had sexual talks with them were about 10% more likely to use condoms at first sexual intercourse compared to those who were not spoken to. Also openness in communication, AOR 0.84; 95% CI (0.75 – 0.93) means that young boys who deemed communication with parents as open were about 16% less likely to use condoms at first sex. It appears openness is a risk factor for sexual behaviour in the Ghanaian cultural context.

Taken together, parents' communications with young girls do not influence their condom use at first sex, whereas for boys, mother communication slightly encourages condom use at first sex. However, if the communication process was open, it leads to reduction in the likelihood of condom use at first sex by boys.

4.5.7 Association between communication and report of pregnancy

Five communication measures were regressed against young people's report of pregnancy, stratified by sex. In the regression procedures for both daughters and sons, the control variables were entered in Model 1, while the communication variables were entered in Model 2. Table 4.33 shows the entire variables in Models 1 and 2. The Hosmer and Lemeshow tests for both daughters and sons' models demonstrated a good fit at Model 1; $\chi^2(7) = 4.077$, $p = 0.77$ and $\chi^2(7) = 3.412$, $p = 0.91$ respectively. The full models containing all predictors were all robust, giving a model $\chi^2(8) = 61.38$, $p < 0.001$ for daughters and $\chi^2(8) = 15.44$, $p < 0.05$ for sons. However, in terms of prediction, the female model explained between 29% (Cox & Snell's R^2) and 39% (Nagelkerke's R^2); while the model for sons explained only 11% (Cox & Snell's R^2) and 15% (Nagelkerke's R^2) of the variance in report of pregnancy.

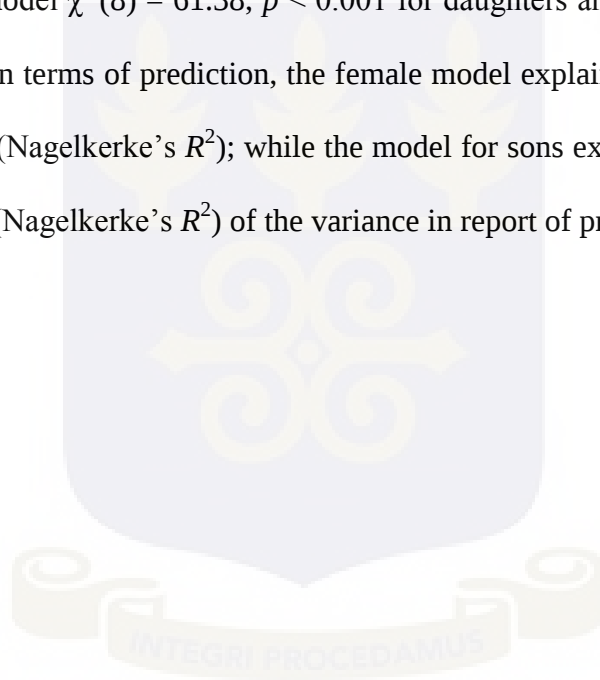


Table 4.32 Hierarchical multiple logistic regression of report of pregnancy stratified by sex of child

Model/Predictors	Report of pregnancy					
	Daughters			Sons		
	<i>B(SE)</i>	AOR	95% CI	<i>B(SE)</i>	AOR	95% CI
Model 1						
Constant (β_0)	-1.14(1.44)			-3.54(1.68)		
Age	0.12(0.07)	1.13	0.98–1.30	0.14(0.08)	1.15	0.98–1.34
Currently in school	-2.15(0.39)	0.12**	0.05–0.25	-0.30(0.39)	0.74	0.34–1.59
Place of residence	-0.06(0.37)	0.95	0.46–1.96	0.77(0.37)	2.17*	1.04–4.52
Model 2						
Constant (β_0)	-2.70(1.69)			-4.97(1.9)		
Age	0.14(0.07)	1.15*	1.01–1.33	0.16(0.08)	1.17*	1.01–1.37
Currently in school	-2.05(0.40)	0.13**	0.06–0.29	-0.29(0.41)	0.75	0.34–1.67
Place of residence	-0.20(0.39)	0.82	0.38–1.76	0.62(0.40)	1.85	0.85–4.02
Frequency of mother communication	0.01(0.02)	1.01	0.96–1.06	0.01(0.03)	1.01	0.95–1.07
Frequency of father communication	-0.02(0.03)	0.98	0.92–1.04	0.00(0.03)	1.00	0.94–1.07
Timing of communication	-0.30(0.40)	0.74	0.34–1.61	-0.48(0.42)	0.62	0.27–1.41
Easiness of communication	.07(0.04)	1.08	0.99–1.18	0.03(0.04)	1.03	0.95–1.13
Openness of communication	0.04(0.05)	1.05	0.95–1.15	0.07(0.05)	1.08	0.97–1.19

Note: * $p < 0.05$. ** $p < 0.001$.

Regression summary of final model for daughters: -2 Log likelihood=180.332, Cox & Snell's $R^2 = .29$, Nagelkerke's $R^2 = .39$

Regression summary of final model for sons: -2 Log likelihood = 162.561, Cox & Snell's $R^2 = .11$, Nagelkerke's $R^2 = .15$.

B = Unstandardized regression coefficient; SE = Standard Error; AOR = Adjusted Odds Ratio, 95% CI = 95% Confidence Interval for the AOR.

Table 4.33 shows that apart from the demographic variables of age and currently in school, none of the communication variables predicted the likelihood of report of ever being pregnant or making someone pregnant. The strongest predictor (currently in school), AOR = 0.13; 95% CI (0.06 – 0.29) indicates that daughters who were currently in school were 87% less likely to report pregnancy. Again, the AOR of 1.15; 95% CI (1.02 – 1.33) for age suggests that a unit increase in age is associated with 15% increase in the likelihood of report of pregnancy. Similarly, the model for sons (Table 4.33) shows that only age, AOR = 1.17; 95% CI (1.01 –

1.37) predicts young boys' report of ever made someone pregnant. In general, while older age is a risk factor for pregnancy for both young girls and boys, current school status is protective against pregnancy for girls only, and not for boys.

4.5.8 Relationship between communication and contraceptive use in last three months

Table 4.34 presents information on both daughters and sons, regarding contraceptive use in previous three months, regressed on demographic covariates and communication variables. Assessment of initial runs revealed that one control variables (currently in school) seemed to suppress the effects of other variables such as age (females) and mother communication with males, and was consequently removed from the model. The full model for daughters (Table 4.34) with all predictors was statistically significant, $\chi^2(7) = 28.48, p < 0.001$.

Three variables made statistically significant contribution in predicting young girls' contraceptive use in previous three months (age, AOR = 1.12; 95% CI (1.01– 1.26); easiness in communication, AOR = 0.85; 95% CI (0.78 – 0.92) and openness in communication, AOR = 0.92; 95% CI (0.85 – 1.00). The data demonstrates that urban residents are 57% more likely to use contraceptives in previous three months, the difference was not statistically significant; AOR (95% CI) = 1.57 (0.8 – 3.05).

The final model for sons (Table 4.34) was significant, $\chi^2(7) = 37.30, p < 0.001$, compared to the constant-only model, suggesting that the model was able to predict the outcome. This was confirmed by a non-significant Hosmer and Lemeshow test, $\chi^2(8) = 11.65, p = 0.77$. Correct classification of cases in the model was very good (77%), explaining 25% (Cox & Snell's R^2) and 33% (Nagelkerke's R^2) of the variance of contraceptive use in previous 3 months.

Five variables (age, place of residence, mother communication, easiness in communication and openness of communication) emerged as predictors for sons' contraceptive use in previous three months (Table 4.34). Place of residence came out as the strongest predictor AOR (95% CI) = 2.77 (1.17 – 6.57), indicating that young boys who stay in urban areas are almost 3 times more likely to use contraceptive in past three months compared to their rural counterparts. It also appeared that both easiness and openness of communication reduce the odds of contraceptive use by young people, while mother communication, age and place of residence favour the use of contraceptives.

Table 4.33 Hierarchical multiple logistic regression of contraceptive use stratified by sex of child

Predictors	Contraceptive use in last three months					
	Daughters			Sons		
	<i>B(SE)</i>	AOR	95% CI	<i>B(SE)</i>	AOR	95% CI
Block 1						
Constant (β_0)	-2.21(1.06)			-5.63 (1.61)		
Age	0.11(0.06)	1.11*	1.02–1.24	0.28(0.08)	1.32***	1.14–1.54
Place of residence	0.33(0.31)	1.39	0.76–2.56	0.77(0.39)	2.15*	1.01–4.60
Block 2						
Constant (β_0)	-0.21(1.25)			-3.63(1.89)		
Age	0.12(0.06)	1.12*	1.01–1.26	0.28(0.09)	1.33***	1.12–1.57
Place of residence	0.45(0.34)	1.57	0.81–3.05	1.02(0.44)	2.77*	1.17–6.57
Frequency of Mother communication	0.03(0.02)	1.03	0.98–1.07	0.06(0.03)	1.07*	1.02–1.16
Frequency of father communication	-0.01(0.03)	0.99	0.93–1.04	-0.03(0.04)	0.97	0.91–1.05
Timing of communication	0.00(0.36)	1.00	0.50–2.01	0.36(0.44)	1.43	0.60–3.38
Easiness of communication	-0.17(0.04)	0.85**	0.78–0.92	-0.14(0.05)	0.87**	0.79–0.96
Openness of communication	-0.08(0.04)	0.92*	0.83–0.99	-0.12(0.06)	0.89*	0.80–0.99

Note: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

Regression summary of final model for daughters: -2 Log likelihood = 215.42, Cox & Snell's $R^2 = 0.15$, Nagelkerke's $R^2 = 0.20$

Regression summary of final model for sons: -2 Log likelihood = 140.70, Cox & Snell's $R^2 = 0.25$, Nagelkerke's $R^2 = 0.33$
 B = Unstandardized regression coefficient; SE = Standard Error; AOR = Adjusted Odds Ratio, 95% CI = 95% Confidence Interval for the AOR.

4.6.0 Summary of findings

The following paragraphs present the summary of the key findings emerging out of the data analyses.

4.6.1 Parent-child sexual communication

1. Majority (74%) of parents in the study area discuss sexual issues with their children. Discussions tended to be parent-initiated, parent-dominated, indirect, and often marked by warnings and threats regarding the consequences of sexual activity. Many parents waited for cues before initiating sexual discussions. There was a high level of congruence in reports of communication between parents and young people.
2. Generally, mothers communicate more with their daughters and sons compared to fathers. In particular, mothers in this study communicated much more with their daughters than their sons in both content and frequency, while fathers talk more with their sons than daughters.
3. Parental communications were centred on sexual risk prevention topics such as *abstinence from sex, STDs, HIV/AIDS, pregnancy and abortion*. Parent-child dyads in Brong Ahafo rarely discuss experiential sexual topic such as *masturbation, homosexuality, contraceptives, reproduction, sexual feelings, how to handle sexual pressure, safer sex, pregnancy, use of condom and choosing sexual partners*.
4. Parent-child communications about sex are ill-timed as most parents typically employed *wait-till-older* attitude, hoping to gather clues about their children's

involvement in some sexual acts before they take communication action. Consequently, most of the parents who communicated with their children did so when the child had initiated sex or already formed a behavioural pattern that may be difficult to change per later sexual communication.

5. Parents were generally more cautious to release vital sexual information to children at an early age, and therefore delayed discussion until mid-adolescence, roughly about age 14-15 years. On the average, parents reported age 15 years as the most appropriate age to initiate sexual discussions. In addition, different topics were discussed at different ages. Biological/developmental sexual topics are discussed between ages 13 – 14 years, sexual risk prevention topics were talked about between ages 14 – 15 years, while discussion on experiential sexual topics occurred mainly between ages 16 -18 years.

4.6.2 Determinants of parental sexual communication

Parental sexual communication with their children is influenced by *family religiosity, parental sexual knowledge, parent discipline and parental trustworthiness*. In addition, *parental permissiveness* predicted father communication only, while *parental age* influences mother communication with children. All these variables increased the odds of parents discussing sexual issues with their children.

4.6.3 Young people sexual behaviours and contraceptive use

1. Forty-three percent (43%) of young people – 50% females and 36% males were sexually experienced, comprising.

2. High proportion of sexually active young people engaged in higher risk sexual behaviours. For example, about two-thirds (65%) had engaged in multiple sexual partnerships, with a mean (SD) number of lifetime sexual partner of 2.9 ($\pm$ 2.7), and more than a quarter (26%) had had sex with non-marital and non-cohabiting partners.
3. More than a third (34%) of sexually active young people was coerced at first sex, of which a higher proportion of females were at higher risk of coercion compared to males (49% vs. 12%, $p < 0.001$).
4. Substantially higher proportion (92%) of sexually active young people knew about family planning compared to their non-sexually active counterparts (51%).
5. Condom use was generally low among young people. The rate of condom use dropped from 38% at first sex, to 30% at last sex. Only 9% affirmed they always used the condom during sexual intercourse. Young men had higher self-efficacy for condom use compared to young women (74.2% vs. 33.0%, $p < 0.001$).

4.6.4 Sexual communication and sexual behaviour

1. Timing of communication and mother communication were the most important variables in parent-child sexual communication with greater influence in sexual behaviour of young people.
2. Young people who reported greater amount of communication with their mothers were relatively younger at first sexual intercourse while on-time communication with parents delayed the onset of sexual activities among young women and men.

3. Higher perceived parental openness and easiness of communication increased the likelihood of daughters engaging more lifetime sexual partners. For sons, mother communication and easiness of communication increased the chances of engaging in multiple sexual partners, but if such communications were delivered on-time, then sons were likely to engage fewer sexual partners.
4. For both daughters and sons, on-time communication reduced the likelihood of being initiating sexual intercourse.
5. Sexual communication does not influence condom use at first sex for girls. In the case of sons, mother communication increased the odds of condom use at first sex, but if the process of communication was deemed open, they were less likely to use condom at sexual initiation.
6. Parent-child sexual communication does not have any effect on report of pregnancy by both young men and women.
7. Young people who perceived the process of communication with parents to be easy and open were less likely to use contraceptives during sexual intercourse. However, sons were more likely to use contraceptives if their mothers, rather than fathers talk to them about sex.

CHAPTER FIVE

5.0 DISCUSSION

The study explored parent-child sexual communication and its influence on sexual behaviour and contraception among young people. This chapter presents detailed discussion of the results of the study with their practical public health implications. The chapter is organized into five major headings as follows:

- 5.1.0 Background characteristics of study participants;
- 5.2.0 Parent-child sexual communication;
- 5.3.0 Determinants of parental sexual communication;
- 5.4.0 Sexual risk behaviours and contraceptive use among young people; and
- 5.5.0 Influence of sexual communication on young people sexual risk behaviours

5.1.0 Background characteristics of study participants

The study respondents comprised 56% mothers and 44% fathers. The involvement of fathers was to facilitate meaningful comparisons to determine which parent was an important source of sexual communication. Many sexual communication studies elsewhere (Hutchinson and Cooney, 1998; Guilamo-Ramos et al., 2006a; Guilamo-Ramos et al., 2006b; Lefkowitz and Espinosa-Hernandez, 2007; Bastien et al., 2011) have targeted mother-child pairs due to the inherent difficulty in recruiting fathers for studies of this nature. Even though the present study attempted to recruit about 50% fathers, this was not possible because difficulties in recruiting fathers as cited by previous researchers were evident.

Adult illiteracy rate in the region based on the 2000 population and housing census data was 42.4% (GSS, 2005). However, in the present study, exactly one-third (33.3%) of the adult

sample reported they have never been to school. Though this figure is slightly lower than the existing illiteracy rate, I believe that the present result may reflect current trends. This is because a decline in illiteracy rate is expected over the 10-year gap between the two surveys since available data show that more people become literate with time (GSS, 2005). Also consistent with the previous survey, the present study found that a higher proportion of women was illiterate compared to men.

The region's urban population according to the GSS (2002; 2005) was 37% as at 2000, but the current study sampled about 46% urban residents. At the time of the survey, there was visible evidence that the rural urban distribution had changed; communities that used to be typical rural have been transformed to semi-urban status. However, data was not readily available to support this perceived social change, because during the data collection period, the 2010 population and housing census had not yet been conducted. The distribution of employment in the present study is comparable to the finding of a previous study (GSS, 2005). For instance, about 5.8% of the adult population in the region was unemployed as per the 2000 census data, but in the current study, about 5.2% stated they were unemployed.

Additionally, the mean age of parents (47.3 ± 10) in the present sample is comparable to other studies, such as Glenn et al. (2008) which reported a mean age of 46.8 ± 8 among an American sample.

With respect to children, about two thirds live with both parents, and about 93% lived with at least one biological parent. The living arrangement was important to this study in that the main objective of the research was to examine parent-child dyads perspectives of sexual

communication and young people sexual behaviour. Earlier studies in Ghana found that living arrangement has some influence on sexual risk behaviour of adolescents. For example, adolescent females who lived with both parents were less likely than their peers who had other living arrangements to have ever had sex (Karim et al., 2003). Similarly, Biddlecom et al. (2009) in a four-nation analysis of parental role in adolescent sexual activity and contraceptive use found that Ugandan female adolescents who lived with their father or father figure⁴¹ only were about 3 times more likely to have used contraceptive at last sex than those who lived with no parent. However, in Ghana, females who lived with their mother or mother figure⁴² only were about 50% less likely to have used a method of contraception. The above clearly shows the importance of living arrangement on sexual behaviour and contraceptive use.

5.2.0 Patterns of parent-child sexual communication

5.2.1 Communication frequency

The study found that parents in the Brong Ahafo region highly communicate with their children about sexual issues. Both parent and child reports indicate that over 70% of parents had discussed at least an aspect of sexual matters with their children. This finding is remarkable and very encouraging in the context of the Ghanaian cultural milieu, where traditionally, sexual communication is perceived to be a taboo and preserve for adults (Botchway, 2004; Osei, 2009). This probably may challenge the notion that sexual communication in the African context is uncommon (Namisi et al., 2009; Poulsen et al., 2010).

⁴¹ An adult male who is not the biological father, but whom a child describes as being a father to him/her, and with whom the child stays with.

⁴² An adult female who is not the biological mother, but whom a child describes as being a mother to him/her, and with whom the child stays with.

In fact, communication about sexual matters, particularly, those related with sexual intercourse and sexual organs are not commonly and easily talked about in Ghana. Many adults perceive such issues as sacred, and as issues reserved for adults. Consequently, in many Ghanaian societies, parents or adults use euphemism to describe sexual issues or organs. Though society frowns on open discussion of these issues, it does not necessarily imply that parents never talk about them at all. Discussion on them takes place as and when necessary, taking into consideration the cultural context.

Earlier studies in some African countries found a moderate amount of parent-child sexual communication (Kiragu et al., 1996; Izugbara, 2008; Namisi et al., 2009). For example, Izugbara (2008) conducted a qualitative study among 187 Southern Nigerian parents and reported that only 39% had had sexual discussions with their children. The author attributed the moderate level of discussion to the ambivalent attitude of the Nigerian society toward sex education. This was so because in the view of the author, Nigerians culturally frame good parenting in terms of parental ability to shield children from early sexual knowledge. However, a recent Nigerian study found that about 65% of mothers had discussed sexuality issues with their children at some point in time (Opara et al., 2010). The findings suggest that parents in this study were more likely to discuss sexuality communication with older children. This is in consonance with previous studies in Ghana (Kumi-Kyereme et al., 2007b), which found that sexuality communication was more common among older adolescents than younger ones.

The study results may, perhaps, mean a changing paradigm in sexual communication over time in Ghana due to the advent of HIV/AIDS. Within the last two decades, the Ghanaian socio-cultural dynamics have changed dramatically. It appears that families these days are able to talk more on sexual issues than they did the generation of yesteryears. Reasons that may account for this paradigm shift in sexual communication include sustained education about HIV/AIDS and technological advancement. Over the last two decades or so, there had been increased public education about issues such as HIV/AIDS due to its debilitating nature and the fear of death associated with the disease. Thus as part of the HIV/AIDS awareness creation process, some aspects of sexuality such as abstaining from sex, condom use and unintended pregnancy are discussed.

In addition, the technological advancements transforming the world today may have contributed to the increased communication about sex in the region. Over the last couple of years, there has been a steady proliferation of Frequency Modulation (FM) radio stations in almost every corner of the country. In the Brong Ahafo region, available statistics show that there are about 31 functional FM stations (NCA, 2011) transmitting various programmes across the region. As part of those programmes, some aspects of sexual health issues are communicated. These might have enlightened parents who hitherto may have remained silent about sexual communication. In addition, many of these FM stations relay some of the important programmes transmitted by popular FM stations in the national capital, Accra. As a result diffusion of information education and communication about various social topics including health is effective in the region.

The world is fast changing and the traditional ways of doing things, including sexuality education had witnessed massive transformation. This age, termed the technological age, comes along with opportunities and challenges. The social transformation process is being fuelled by globalization, urbanization and electronic communication. For example, the electronic communication medium, such as the internet, exposes young people to a wide range of information and education, including sexuality more rapidly and easily than previous generations (Fatusi and Hindin, 2010).

5.2.2 Initiation of parent-child sexual communication

Both qualitative and quantitative evidence from parents and young people's reports indicate that communication decisions rest with the parents. Most of the parents were of the opinion that as their children were growing up; they felt the children ought to know about sexuality. The process of communication was parent-controlled in which parents authoritatively dictated every aspect of the conversation. Young people were generally seen as passive recipients of parental messages, though a few of them asked questions but their involvement was clouded by shyness. The result means parents in the study area perceived that initiating sexual discussions with children was part of their responsibility in the parenting processes. This is encouraging, in that recognition of this role by parents is a major first step toward sexuality communication effort.

Interview narratives suggest that, parental messages were typically cautionary such as "stay away from boys/girls". Most parents believed that this form of cautionary message was implied, meaning children should avoid sex to prevent unintended pregnancy, and STDs. Sexual messages were general and indirect in nature with only a few parents discussing facts

about specific topics. Topics for discussion were determined by the parent according to the circumstances that led to the conversation about sex. Comparable Africa-based studies have made similar observations including those by Wamoyi et al. (2010) in Tanzania and Izugbara (2008) in Nigeria.

5.2.2.1 Cues and motivations for sexual discussions

Parent-child sexual communication may occur due to one reason or the other. The present study indicates that largely, parents engage their children in sexual discussion based on parents' own initiation and in some cases, suspicion of child's involvement in sexual activities or other cues (Figure 4.9). Most parents initiated talks for various reasons, with an overriding aim of protecting the child, especially girls from dangerous and harmful consequences of sex. Parents acknowledged that it was their prime duty to provide sexuality education to their children. In fact, many of the parents who reported talking to their children did so when they perceived that the child was "of age", meaning the child was old enough to understand sexual messages. This stems from the fact that parents are apprehensive to release sexual information to their children due to the sensitive nature of issues about sex. Parents thus prefer to wait until the child reaches a particular age or period in development.

Qualitative evidence from child interviews suggested that the key driving forces prompting parents to initiate sexual conversations were basically based on clues. These include whether the child was involved in a 'bad company of friends' seen with a girl or boy and occurrence of pregnancy or abortion in the community involving the child's peers. In some cases communication occurred when parents gathered reliable information that the child was sexually active. Other studies across the globe have consistently reported similar findings

(O'Sullivan et al., 2001; Eisenberg et al., 2006; Pluhar et al., 2008). For instance, in the USA, Eisenberg and colleagues (2006) studied why parents initiate sexual talks and observed that parents who believed their children had been sexually experienced were more likely to have discussed more sexual topics compared to their counterparts whose children were not sexually active.

Relying on clues to prompt sexual communication negatively affect the timing of communication. No wonder about 45% of parents (Table 4.15) in this sample tended to offer off-time communication to their children. This finding is consistent with a similar study in Tanzania which reported that most parents generally communicated with their children after observing/hearing that the child was sexually active (Wamoyi et al., 2010). When such a tendency exists, parental communications may occur, but might have limited desired impact on young people's sexual behaviour since waiting for clues to start discussion might be too late. This is because most parents have limited or inaccurate knowledge of their children's sexual behaviour (Stanton et al., 2000). Therefore, by the time a parent becomes fully aware that their child is sexually active and would benefit from parental sexual communication, the child might have already established a behavioural pattern that may be difficult to change via parental communication (Eisenberg et al., 2006).

Both quantitative and qualitative evidence confirmed that in all forms of sexual communications, parents conveyed messages to their children with fear-based beliefs by emphasizing the dangers associated with being sexually active. Most parents were under the impression that providing sexual information to children early has the potential to encourage young people to lead immoral lives or become wayward. Similar findings have been reported

in studies in some African countries such as in rural Nigerian (Izugbara, 2008) in rural Tanzania (Wamoyi et al., 2010) and urban Uganda (Lofgren et al., 2009). For example, Izugbara (2008) reported that during sexual discussions with their children, Nigerian parents mostly portray sexual issues as dangerous and thus sexual themes sought to stigmatize sex and sexual information. The author also found that sexual topics commonly raised during sexual discussions were those most likely to scare children rather than provide them with comprehensive information about the realities of sex.

In the present study, about 70% each of parents and young people (Figure 4.2) affirmed that sexual discussions were frequently associated with parental warning and threats, particularly, discussion of sexual risk prevention topics such as abstinence from sex, STDs, HIV/AIDS, pregnancy and abortion. The finding is consistent with two previous studies conducted in Uganda and Tanzania (Lofgren et al., 2009; Wamoyi et al., 2010), and it is typical African style of sexual communication. In most Ghanaian societies, issues of teenage pregnancy, abortion and HIV/AIDS are normally associated with shame, reproach and stigmatization. Consequently most families would want to avoid social ridicule to save their names and that of their family. Thus parents insist on young people leading morally upright lives (Osei, 2009). In an effort to ensure that young people upheld morally upright behaviours, parents placed emphasis on young people abstaining from sexual acts and relations altogether during sexual communications.

5.2.3 Parent-child communication on specific sexual topics

This study found that parent-child communication about sex was most of the time centred on sexual risk prevention (sexual safety) and biological/developmental topics. Among the 20

topics, the following topics were prominently discussed: sexual abstinence, HIV/AIDS, STDs, puberty, menstruation, physical development, consequences of premarital sex, and substance use (Table 4.2). The findings are consistent with past studies in the domain of parent-child sexual communication that examined discussion of sexual topics (DiIorio et al., 1999; Rosenthal and Feldman, 1999; Wyckoff et al., 2008; Atienzo et al., 2009). For instance, Wyckoff and colleagues (2008) assessed parent-child communication about 10 specific subjects, and majority of dyads affirmed that communication had occurred about most topics. The occurrence of discussion about sexual risk prevention topics in the present study suggests that many parents are fundamentally opposed to premarital sex. Those parents hence emphasize abstinence in their sexual communication efforts to discourage early sexual initiation. Recent studies support this result; with most of these studies reporting that majority of parents tend to focus sexual discussions on the issues of child protection and safety, either from disease or pregnancy or both (Miller et al., 2009; Littlejohn, 2010; Wilson et al., 2010b; Wilson and Koo, 2010).

In particular, discussion about abstinence from sex emerged as a prime concern for parents in this study, which was discussed by 73.5% of parents, and confirmed by children (69.2% received talks from mothers and 45.4% from fathers [Table 4.5]). The different proportions reported by parents and young people are consistent with evidence in the literature. For example, Jaccard et al. (1998) reported that congruence between mother and adolescent reports of communication was very low. This implies that parents and young people have different estimates of how often sexual communication occurs between them. The finding of the present study, however, contrasts those found by Wyckoff et al. (2008) who reported that some American parent-child dyads seldom discussed sexual topics.

Consistent with previous researches (Pistella and Bonati, 1998; DiIorio et al., 1999; Feldman and Rosenthal, 2000; DiIorio et al., 2007), parent-child dyads in this study were less likely to report discussion on 12 out of the 20 topics, including masturbation, homosexuality, contraceptives, reproduction, sexual feelings, how to handle sexual pressure, safer sex, pregnancy, use of condom, choosing sexual partners, when to initiate sex, and abortion (Table 4.5). Parents having least discussions on those topics, most of which are largely classified as experiential sexual topics, may probably confirm the notion that parents are fundamentally opposed to children becoming sexually active. This was confirmed in the in-depth interviews with parents and children. Parents generally wished their children were sexually abstinent.

5.2.4 Congruence in reports of parent-child sexual communication

One significant finding from the study was the generally high level of agreements in reports of occurrence of sexual discussion or otherwise, between parents and young people, though slight variations occurred on a few topics. Most of the sexual topics that were rated by parents as having been discussed or otherwise were all confirmed by young people as such. Some topics were highly rated compared to others. At all levels of talks, mothers and children, particularly, daughters exhibited higher level of agreements compared to father-child discussions (Table 4.8). Whether parent-child pairs agreed a topic was discussed or not, parents appeared to be reporting significantly higher estimates of occurrence of such communications compared to children. Evidence from the literature suggests that parents have a tendency to “overestimate” the degree of communication with children, while children may “underestimate” the amount of discussion parents had had with them (Aspy et al., 2006). In spite of this trend of reporting, there was no mechanism to assess from the data whether

parents overestimated their report of discussion or children underestimated on their part. Aspy and colleagues (2006) made a similar observation in their assessment of parent-child agreement in communication among parent-child dyads in the USA.

The higher level of congruence in reports indicates that parents and their children were all reporting similar probabilities of occurrence of discussion about the various topics consistent with other studies. As suggested by Wyckoff et al. (2008), this kind of agreement in reports might mean that perhaps, children are internalizing parental sexual messages. Congruence in parent-child reports of communication might also imply that parents in this sample had indeed made the conscious effort to communicate with their children about specific sexual topic. Unfortunately, a search through the literature found no comparable African-based studies that had examined congruence in reports of communication between parent-child dyads in. Thus the findings regarding congruence of reports among participants in the present study was compared to data from the USA.

Contrary to the above findings, other studies have reported substantial disagreements between parent and child reports of discussion on specific sexual topics (Jaccard et al., 1998; Raffaelli et al., 1999; Jaccard et al., 2000; Hadley et al., 2009; Kapungu et al., 2010). For instance, in one study in the USA, Jaccard et al. (2000) reported that about 73% African-American mothers affirmed that they had discussed sex with their adolescent children, yet only about 46% of the children indicated their parent had talked to them. In a recent related study, Kapungu and colleagues (2010) examined parent-child differences in discussion of sexual topics among African-American parent-child dyads and reported that substantial disagreement

existed between parents and adolescents about whether communication about specific topics had occurred.

5.2.5 The timing of sexual communication

The timing of sexual communication is a significant factor that influences sexual behavioural outcome. Yet in the sexual communication literature, only few studies have examined timing to determine its impact on sexual debut among young people (Miller et al., 1998c; Beckett et al., 2010).

The present study found that about 55% of young people in the Brong Ahafo region received on-time sexual discussion (Table 4.15). By implication, about 45% never received any information on important sexual topics before they initiated sex. Evidence in the literature suggests that generally, sexual communication in most countries across the world is ill-timed (Izugbara, 2008; Dilworth, 2009). The finding from the present study is at variance to the results of other studies in Africa, such as Izugbara (2008) in Nigeria and Wayomi et al. (2010) in Tanzania. These studies reported that parental communications are largely mistimed. Similarly, results obtained through a longitudinal study in the USA also affirmed that many parents and adolescents (> 40%) do not talk about sexual topics before the child initiates sexual intercourse (Beckett et al., 2010). In spite of the above findings, the present study is akin to one Mexican study by Atienzo and associates (2009) found that over 68% of Mexican parents had provided on-time communication to their children.

Parents who provide off-time communication typically employ *wait-till-older* attitude, till a period the child is developmentally mature to be able to handle sexual information better. In

view of the fact that preventing the development of a new behaviour is naturally easier than stopping or changing an established behaviour (Eisenberg et al., 2006), on-time sexual communication thus becomes critical.

5.2.5.1 *Appropriate age to initiate sexual discussion*

The study revealed that the age of the child was a critical marker for sexual discussions in some homes. Parents in this study, tended to talk to their children about sex during mid-adolescence (Table 4.16). Generally, parents believe that the most appropriate age for engaging children in sexual communication is 15 years. Most parents were of the opinion that by age 15 years, the child would have been physically matured and ready for such discussions.

Mothers initiated sexual discussion with their children about a year earlier compared to fathers. Parents with at least secondary education were significantly more likely to hold sexual discussions with their children about one year earlier than their counterparts with basic no or education (Figure 4.12). Even though some parents began talks when children were as young as 6 years old, others waited until their children were 20 years old. This finding suggests that parents in this sample were more cautious about vital sexual information and thus provided sexual communication to their children when children were much older in contrast to what findings from the USA (Murphy et al., 2011). Majority of parents in the study USA began sexual discussions when their children were around 12 years of age with the age at first discussion ranging from 6 years to 17 years.

The present study revealed that some mothers think children younger than 15 years were “too young” to receive sexual information because of the sensitive nature of such discussions. This

finding corroborates previous studies in Australia (Rosenthal et al., 1998), USA (Wilson et al., 2010a) and in Africa (Poulsen et al., 2010). Many researchers have described this parental perception as a significant barrier to parent-child sexual communication (Miller et al., 2009; Jerman and Constantine, 2010; Wilson et al., 2010a). Providing sexual talks at an older age may have some implications for sexual decisions and behaviours of young people. Early and timely sexual communication might have tremendous impact on sexual behaviour and prevent risky sexual activities among young people.

In spite of the fact that most parents generally delay discussion until age 15 years, the study revealed slight variations with respect to age of discussion of specific sexual topics. On the average, discussion of biological/developmental sexual topics such as physical development, puberty and menstruation occurred between ages 13 years and 14 years (Table 4.16). For sexual risk prevention topics (STDs, HIV/AIDS, abstinence, consequences of premarital sex, substance use), communication took place between ages 14 years and 15 years; communication about all other topics, especially experiential topics occurred between 16 years and 18 years.

It is interesting to note that the link between the age of discussion experiential topics (16-18 years) and the median age at first sex of 17 years, as reported in this study. When the two are juxtaposed, one could conclude that parental discussions about experiential topics are triggered by visible signs of children sexual involvement. Such a practice has the potential to affect parental communication efforts negatively.

5.2.6 Gender differences in sexual communication

The study found not only significant parental gender differences in frequency and content of communication, but also child gender differences in sexual messages received from parents (Tables 4.9 and 4.10).

5.2.6.1 *Parental differences*

Consistent with other studies (Swain et al., 2006; Wyckoff et al., 2008) the present study demonstrated that mothers and fathers substantially differ in the amount of communication they deliver to their children. Generally, mothers talk more with their children compared to fathers. In particular, mothers in this study were more likely to communicate much more with their daughters than their sons in both content and frequency. Mother-child difference in sexual communication confirms the findings of previous studies in Africa (Phetla et al., 2008; Wamoyi et al., 2010) and in the USA (Miller et al., 1998b; DiIorio et al., 1999; DiIorio et al., 2003; Pluhar et al., 2008; Miller et al., 2009; Kapungu et al., 2010; Wilson and Koo, 2010). For example, in Miller and colleagues' (2009) study, mothers' were found to have increased odds of talking to daughters compared to sons.

On the other hand, parent-child sexual communication studies involving fathers have reported mixed results for father-child communications. While some studies have reported no difference in fathers' communication with daughters and sons (Kapungu et al., 2010), others have demonstrated that fathers talk more with their sons than daughters or they talk more with daughters than sons (Wilson and Koo, 2010). The present study revealed that generally, fathers communicate much less, but their communication was relatively more with their sons than daughters. This finding is consistent with previous studies that reported higher level of

communication between fathers and sons compared to daughters (Sneed, 2008; Wilson et al., 2010a). On the contrary, Kapungu et al (2010), found no significant difference between fathers' communication with their daughters and sons. However, Wilson and Koo (2010) in a nationwide survey in the USA, found to their surprise, that fathers were more likely to talk to their daughters than sons on dating and relationship related topics.

The findings of the present study also indicate that mothers were the most important source of sexual information in many homes. Some reasons may account for mothers' deep involvement in sexual communication with their children. Mothers comparatively are closer, spend more time in care giving, joint activities, and conversation with their children compared to fathers (Waizenhofer et al., 2004); and this presents mothers with greater opportunity to have more interactions with their children. Such closeness facilitates communication. Secondly, pubertal development in girls, such as menstruation presents an opportunity to mothers to discuss aspects of sexual issues with their daughters. Also, mothers are the primary care givers in many homes and thus assume the responsibility of sex educators as part of the parenting processes. The comparatively higher proportion of mothers who reported communication with their children may emphasize mothers' apprehension for the safety of their daughters. This might be the case, considering the African socio-cultural environment marked by male-dominance in sexual relationships, sexual coercion and pressure, women's low self-efficacy in sexual negotiations and imbalance in power between men and women (Namisi et al., 2009).

On the contrary, the relatively low communication between fathers and their children seems to suggest that father-child connectedness is low compared to mothers. Typically, in many settings including Ghana, most fathers find it difficult and very uncomfortable to discuss

sexual issues with their daughters. It was evident in this study that fathers were of the opinion that daughter's sexuality is a matter for 'women', and thus tended to refer daughters' sexual discussions to mothers. This pattern of father communication is consistent with the findings of other studies (Wamoyi et al., 2010; Wilson et al., 2010a). In an attempt to rationalize fathers' low involvement in sexual communication with daughters, Kirkman et al. (2002) argue that fathers construe sex education as equivalent to both menstruation and pregnancy, and therefore equate sex education to discussion of female topics.

Even though fathers acknowledge that communicating with their children about sex is an important aspect of the parenting processes and a major parental responsibility (Kirkman et al., 2002; Wilson et al., 2010b), their relatively low involvement in communicating about sex with their children is a cause of concern.

5.2.6.2 *Child differences*

In consonance with existing literature, the present study demonstrated gender differences between daughters and sons in relation to sexual discussions received from mothers and fathers. Daughters reported more communication with mothers than fathers while sons reported receiving more communication with fathers Tables 4.10. The same pattern of results was obtained in a multi-site study in Tanzania and South Africa on socio-demographic differences in parent-child communication about sexuality and HIV/AIDS (Namisi et al., 2009). The authors found that young people across the three study sites reported they preferred talking to their mothers than fathers; and in particular, adolescent females rated their mothers highly as sexual communication partners.

5.2.7 Rural-urban differences in reports of communication by parent and child

The current study demonstrated that young people living in urban areas significantly reported more communication with their mothers compared with their rural counterparts on 4 of the 20 topics (Table 4.12). There was no difference in communication between young people and their fathers. The rural-urban similarity in parental communication may be due to improvements in living standards and technological advancement. Mobile telephone communication and access to electricity and portable water had improved rural life. In many rural parts of the study area, the populace had access to information through the electronic media, mainly TV and FM radios as well as community information centres. These media expose parents to general communication and education including information about sexual issues, irrespective of location.

5.3.0 Determinants of parental sexual communication

In an effort to identify predictors of parental sexual communication, selected parental characteristics/family factors were evaluated against parents' report of frequency of communication.

5.3.1 Relationship between socioeconomic status and parental sexual communication

Socioeconomic status has some links with educational attainment, which is either directly or indirectly associated with variables such as sexual knowledge. Consistent with earlier studies that examined the relationship between educational level and sexual knowledge (Tapia-Aguirre et al., 2004; Lehr et al., 2005; Gallegos et al., 2007), the present study demonstrated that higher educational attainment of parents (secondary and above) was highly associated with higher sexual knowledge. Thus given the relationship between sexual knowledge and

sexual communication, parents from rich families are expected to provide more sexual talks with their children.

At the bivariate level, the study revealed that socioeconomic status was positively related with the frequency of communication reported by parents. On the average, rich families talk more to their children about sexual issues compared to the averagely rich and the poor. This finding was consistent with other studies across various settings: Morelos, Mexico (Tapia-Aguirre et al., 2004); South Africa (Namisi et al., 2009); Cote d'Ivoire (Babalola et al., 2005); USA and (Lefkowitz et al., 2003). All those studies found that parents from rich families had more sexual discussions with their children compared parents from poor families.

In spite of the bivariate association between communication and socioeconomic status, the relationship disappeared at the multivariate level. It is possible that the effect of socioeconomic status on communication was suppressed by the presence of other variables such as education. The absence of association between communication and socioeconomic status is consistent with many past studies (such as Crawford et al., 1993; Sly et al., 1995; Gallegos et al., 2007). This finding is not a complete departure from earlier studies. For example, in a review of the parent-sexual communication literature between 1980 and 2002, DiIorio et al. (2003) reported an absence of relationship between discussion about AIDS and mothers' education, or household income. It has also been reported that among African-American mothers, socioeconomic variables such as education and income did not influence mother-child sexual communication (Pluhar et al., 2008).

5.3.2 Association between family structure and parental sexual communication

The study revealed that two-thirds (66.5%) of participants live in two-parent homes with their children, 26.8% single parents and 6.7% 'other arrangements' (Table 4.2). Bivariate analysis found statistically significant differences among the various categories. In all, there was a significant relationship between family structure and parent report of communication with young people. Surprisingly, post-hoc analysis revealed that single parents communicate more with their children than parents from intact families and 'others' including grandparents and other relations. Generally, children from two-parent families are thought to have better influences from their parents in terms of communication and sexual behaviour. However, not too many studies have accessed how family structure influences parental sexual communication.

A contextual explanation to this finding is that single parents, especially mothers generally bear the financial responsibilities in raising their children. As a result, these parents may not want to incur additional financial responsibility when a child brings home an unintended pregnancy. It is also possible that majority of these single parents may have been victims of teenage pregnancy during adolescence. This perhaps, might pre-empt them to take precautionary measures to protect their children to avert similar occurrences. Thus communication with their children becomes more frequent.

5.3.3 Association between parental sexual communication and family religiosity

Studies have demonstrated the potential influence of religiosity on sexual behaviour of young people (Rostosky et al., 2004; Manlove et al., 2008; Hair et al., 2009; Leonard and Scott-Jones, 2010; Landor et al., 2011). For example, Manlove and associates (2008) used structural

equation models to examine the pathways between religiosity and sexual behaviour and reported that higher family religiosity indirectly affects young people's engagement in multiple sexual partnerships. This study attempted to assess how family religiosity may influence parental ability to communicate sexual values to their children.

Bivariate analysis revealed a positive correlation between family religiosity and parental sexual communication. However, religiosity only explained about 3.2% of the variation in frequency of parental communication. This relationship persisted in logistic regression model predicting parental sexual communication. The result indicates that parents from families with high level of religiosity were more likely to provide a greater amount of communication. An explanation to this pattern of finding is that chastity is a fundamental moral principle in almost all religions, and therefore discussion about sexual morality becomes a key concern to parents in highly religious families. Parents in such families are more likely to capitalize on opportunities such as morning devotions to talk about sexual issues.

Religiosity as a topic has not been well researched in Africa unlike in many developed countries such as the USA. Evidence suggests that many studies in Africa had examined religious affiliation rather than religiosity; and thus literature is not readily available for local comparison. However, previous studies in the advanced countries have reported findings similar to the present study. In the USA, Regnerus (2005) reported that parental religiosity was related to communication frequency; however, the author cautioned that the relationship was a complex one, in that highly religious parents' communication about sex is largely conversations about morality of adolescent sexual involvement. In other words, highly religious families may tend to concentrate their communication efforts on sexual morality.

The link between religiosity, sexual communication and sexual behaviour need to be studied in-depth. In a secondary analysis of the 2003 Ghana Demographic and Health Survey, Gyimah et al. (2010) reported that Ghanaian men who professed to be traditionalist or Muslim were less likely to report risky sexual behaviour compared to Christians. The teaching of religious morality per se may not necessarily enforce adherence.

5.3.4 Association between parental sexual communication and parents' perceived sexual knowledge

Research is unequivocal about parental influence on their children's sexual behaviour (Clawson and Reese-Weber, 2003; Huebner and Howell, 2003; Lefkowitz and Stoppa, 2006; Ogle et al., 2008). Nevertheless, parents' ability to perform this role successfully depends on parents' knowledge about sexuality and how they are able to transmit or communicate with their children about these issues (Blake et al., 2001; Lehr et al., 2005; Gallegos et al., 2007). Consistent with other studies in developing countries (Gallegos et al., 2007), the current study, revealed a positive relationship between parents' self-rated sexual knowledge and communication at both bivariate and multivariate investigations. This suggests that how much parents' perceive they know about sexual issues influences their ability to communicate about such issues. Similar findings have been reported elsewhere. In Mexico, for example, Gallegos (2007) and Tapia-Aguire (2004) reported a positive effect of sexual knowledge on communication, but their finding was moderated by parents' educational level.

The underlying reason for this association may be that parents who feel they are more knowledgeable about sexual matters are more likely to be more confident and comfortable in

discussing sexual issues with their children. Such parents may have the zeal to communicate, and might do so more frequently than their peers who perceive themselves to be less knowledgeable as reported in other studies elsewhere (DiIorio et al., 2003; Lehr et al., 2005; Byers et al., 2008; Miller et al., 2009; Jerman and Constantine, 2010). Again prior research by Jaccard et al. (2000) indicates that lack of knowledge and comfort of talking were the two most important reservations mothers had about discussing sexuality with their adolescent children.

5.3.5 Association between parental sexual communication and parental discipline

The present study found significant difference between parents who enforce restrictions or discipline on their children and those who do not (see Section 4.3.5). Strict parents were more likely to discuss more sexual topics and communicate more frequently with their children than their counterparts who do not impose restrictions (or are liberal). Evidence shows that children who are restricted by their parents are less likely to be involved in risky sexual behaviours (Wight et al., 2006a). In the regression analysis, parental discipline strongly predicted sexual communication for both mothers and fathers, indicating that parents who were seen as disciplinarians were more than 2 times likely to communicate with their children about sex.

5.4.0 Sexual behaviour and contraceptive use among young people

Young people's self-reported sexual activities and their use of contraceptives were used to examine their sexual behaviour. Across the world, young people have been reported to be engaging in various kinds of sexual activities (Okafor and Obi, 2005; Adam and Mutungi, 2007; Odu et al., 2008; Stephenson, 2009), many of which can be described as risky. This

section discusses the study finding in relation to young people's engagements in selected sexual activities.

5.4.1 Profile of sexual activities among young people

The study found that 43% of young people, comprising 50% females and 36% males had ever had sexual intercourse (Table 4.22). The median age at first sex was 17 years for both sexes. The finding of the study was not completely different from earlier studies. For example, in a nationally representative survey of Ghanaian young people aged 12-24 years, Karim and colleagues (2003) found that 41% of females and 36% of males were sexually experienced, and the median age at first sex was 17 years for both sexes. Similarly, in a study to evaluate the Africa Youth Alliance project in Ghana, McQuestion et al. (2011) reported that among a sample of young people aged 17-24 years, 49% of females and 43% of males had ever had sex. The mean age for the sample was 17 years for females and 16.5 years for males.

Similar proportions of sexually active young people and their age at first sex have been reported in other studies in Africa (Pettifor et al., 2005; Urassa et al., 2008; Mazengia and Worku, 2009; McGrath et al., 2009). For instance, in Ethiopia, Mazengia and Worku (2009), examined the age at first sexual intercourse and reported a median age of 17 years for both sexes. This suggests that the age at which young people in the present study initiate sex is not different from what pertains elsewhere in Africa.

The median age at first sex for females (16 years) and males (17 years) in the present study is though comparable with other Ghanaian studies, it was slightly lower than those reported in the 2008 Ghana Demographic and Health Survey (GDHS). The 2008 GDHS reported a

median age at sex of 18.4 year for females and 20 years for males. These are fairly higher than the age at first sex in the present study. The differentials in age at first sex, and between females and males in the present study is also consistent with other studies in Ghana (GSS et al., 2004; McQuestion et al., 2011) and elsewhere (McGrath et al., 2009), indicating that females initiate sex earlier than males. Females initiating sex early in life has some demographic and social consequences as it is a marker for females' exposure to the risk of teenage pregnancy. Since young women disproportionately face a dual risk of unintended pregnancy and contracting STDs including HIV, compared to young men, concerted programmatic interventions need to be designed to the effect of increasing the age at sexual initiation, especially for young girls.

Previous Ghanaian studies have generally reported that sexual activities are higher among females than males (Awusabo-Asare et al., 2006; GSS et al., 2008; GSS et al., 2009a; Maya, 2009). The findings of the present study were not different from previous studies, in that higher proportion of females than males stated they were currently in sexual relationships. As expected, and consistent with other studies (Glover et al., 2003; Boonstra, 2007), sexual activity increases with age. In this sample, fewer than 3% were sexually experienced before 15 years. However, before young people in the sample turned 25 years, more than 83% had initiated sex, comprising 90% females and 77% males (Table 4.22). These statistics are slightly higher than previous national survey that reported that by age 20, 83% of women and 56% of men have had sex (GSS et al., 2004). Again the pattern of the statistics is consistent and typical of sexual experience of young people in many sub-Saharan Africa countries (Boonstra, 2007).

The results show that most young people begin sexual activities after 16 years, by which time many might have completed Junior High School. Therefore, it is imperative to target young people with sustained sexuality education during their Junior High School years through the school health education programme (SHEP) to supplement parental sexual communication efforts.

5.4.2 Higher risk sexual activities

Becoming sexually active during adolescence or young adulthood is a risk; however certain sexual activities are more risky to engage in. These activities include early sexual initiation, multiple sexual partners, unprotected sex, and transactional sex. Young people who engage in these behaviours are at higher risk of experiencing unintended pregnancy or contracting STDs, including HIV. Result from the survey indicated that about 65% of young people have had more than one lifetime sexual partner (see Section 4.4.2) consistent with one study in Kenya (Mattson et al., 2007). In the present study, males were found to be almost 2 times more likely to have engaged in multiple sexual partnerships similar to the finding of previous Ghanaian studies (Afenyadu and Goparaju, 2003; GSS et al., 2008) and elsewhere (Mabayoje et al., 2005; Odu et al., 2008; Kalichman et al., 2011). For example, in Ghana, Afenyadu and Goparaju (2003) examined adolescents aged 15-24 years and found that males were more than two times likely to engage in multiple sexual partnerships compared to females (55% vs. 26%).

An explanation to the above findings can be viewed at from two perspectives – men sexual attitudes and cultural construction of sexuality in most Ghanaian societies. First, males generally have high sexual drive. This stems from the fact that most men use sexual prowess

to demonstrate their masculinity, and thus use the number female sexual partners they have had sex with as a yardstick. Secondly, in most Ghanaian societies, polygyny⁴³ is generally accepted and practiced. According to the 2008 GDHS (GSS et al. 2009), about 10.4% of married men in the Brong Ahafo region are currently in polygenous relationships. This practice pre-informs young men that polygyny is a norm in our society, and therefore, they try to experiment it during premarital sexual relationships.

Multiple sexual partnerships, whether serially or concurrently, is a risk factor for the spread of STIs including HIV. This is because uninfected persons are more likely to be exposed to infections (Mah and Halperin, 2010). In Ghana, most HIV cases are contracted through heterosexual contact (GSS et al., 2009a), thus young people who engage in multiple sexual partnerships are at elevated risk of contracting STIs. In addition, multiple sexual partnerships increase the frequency of sexual activity and may have a toll on the current fertility levels in Ghana.

Consistent with earlier studies, about 34% of young people in the present study had their first sexual intercourse unwillingly (Table 4.22). Females were 7 times at risk of sexual coercion compared to males OR (95% CI) = 6.95 (3.92 – 12.33). The overall proportion was slightly higher than that reported in a multi-country assessment of sexual coercion among girls aged 12-19 years, as part of the “Protecting the Next Generation” project sponsored by the Guttmacher Institute (Moore et al., 2007). In that study, Moore and colleagues (2007) reported that the prevalence of sexual coercion in Ghana was 30%, and was second to Malawi, which had the highest of 38%. Although it will be difficult to make side-by-side comparison due to

⁴³ The practice of having more than one wife.

methodological differences, on the surface, the explanation to the variation in the proportions may be due to the wide age range (10 – 24 years) for the present study, as opposed to Moore et al.'s study which covered only adolescents aged 12 – 19 years. Also while the present study comprised both sexes, Moore et al.'s study used only females.

albeit

Sexual coercion has its own risks associated with it. According to Agardh et al. (2011), some of the effects of sexual coercion include early sexual debut, multiple sexual partnerships. The fact that females are disproportionately coerced into sex is a major cause for concern for women's sexual right and reproductive health. This is aggravated as a result of women's lack of assertiveness and skills to negotiate safer sex, gender inequality and the power imbalances between male-female sexual partners.

Put together, this study demonstrated that young women were significantly more likely than young men to have been sexually experienced; nonetheless, women were 2 times less likely to report having sex multiple partners. This paradox needs to be investigated further to determine the factors that may cause this relationship

It was also evident in the study that over a quarter (26%) of young people had engaged in sexual intercourse with a non-marital and non-cohabiting partner during the previous 12 months preceding the survey. During the same period, it was also reported that over 14% have had transactional sex. Higher proportion of females (18%) relative to males (9%) reportedly had exchanged sex for gift/money (transactional sex). This finding is consistent with one study in Tanzania, which found that 42% of female youth had received gifts/money for sexual favours compared to 10% males (Urassa et al., 2008). The reasons for engaging in higher risk

sexual activities included economic, peer influence and the desire to experience sex. These reasons were echoed by young people and parents during the qualitative survey. In recent times, the Brong Ahafo region has become a hub of commercial activities, including trading, mining and construction of major projects like the Bui hydro dam. These commercial activities attract many people into the region. It is possible that the influx of the people may contribute to increased sexual activities.

5.4.3 Contraceptive use by young people

This study demonstrated that sexually active young people are highly knowledgeable about family planning compared to their non-sexually active counterparts. Variety of sources of information for each group was reported.

In many developing countries, particularly countries in sub-Saharan Africa, contraceptive use among young people is poor. Even though contraceptives and condoms awareness among sexually active young people is very high, many fail to protect themselves during sexual intercourse as documented in this study. Similar findings had been reported by previous Ghanaian studies (Glover et al., 2003; GSS et al., 2004; GSS et al., 2009a). Findings from the present study indicate that a little over one-third (38%) of young people used condoms at first intercourse, 30% did so at last intercourse, while about 54% reported general contraceptive use in previous three months preceding the survey (Table 4.25). The condom use rate is close to the rates found in other studies conducted in Ghana (Adih and Alexander, 1999; GSS et al., 2008; Biddlecom et al., 2009).

The reduction in the rate of condom use from 38% at first sex to 30% at last sex may present public health and demographic challenges in the Brong Ahafo region. The reduction seems to imply that many young people indulged in unprotected sex, and once they tend to stabilize their relationships. Unprotected sex potentially exposes young people to unintended pregnancy and STDs including HIV. This could fuel the spread of HIV/AIDS in the region and also increase the fertility level in the region.

The results indicated no significant differences between females and males in either case. These findings are at variance with those found in other surveys in Ghana, which reported different rates of condom use among females and males (Adu-Mireku, 2003; GSS et al., 2008). However, when the data was disaggregated into age groups, young adults aged 20-24 years demonstrated gender differences with males being more likely to use contraceptive in previous three months.

The data indicates that when contraceptive use was suggested by the female partner, the actual use was determined by the male partner. Rickert et al. (2002) described this situation as females' satisfying their partner's feelings and desires rather than their own. This suggests that in as much as female sexual partners would want to use contraceptives for very good reasons; they were less likely to carry out such decision. Such a tendency perpetuates and exacerbates the many sexual risks young women face in our setting as a developing country. In this study, the main reason cited as barriers to male condom use included 'condoms prevent enjoyment'; 'it was not necessary' and 'did not think about it'. This finding is in line with previous research in Ghana. Manlove et al. (2008) in a meta-analysis found that perceived

reduction in physical pleasure was a barrier to male condom use, which was negatively associated with consistency of use.

5.4.4 Pregnancy and outcome

In this study, nearly half (48.7%) of young people had ever been either pregnant or made someone pregnant (Table 4.23); of whom about 53% reported more than one pregnancy. Almost everyone (95%) who reported pregnancy did not intend to be pregnant at the time of pregnancy. These results suggest that pregnancy was widespread among the study population, which is an indication of high prevalence of unprotected sex as reported in Section 5.5.3; paragraph 2 of this chapter. The proportions reported in this study agree with the findings of an earlier study by Glover et al. (2003), who reported that 87% of young women who had experienced a pregnancy indicated that their last pregnancy was unwanted. In addition, 50% of the pregnancies resulted in live births, while 46% terminated their pregnancies through induced abortion. The prevalence of abortion is similar to the results of an earlier Ghanaian study by Agyei and colleagues (2000), who reported that 47% of all pregnancies were aborted. Similarly, in South Africa, MacPhail and colleagues reported that among female youth 15-24 years about half reported being ever pregnant, of which 65% were unintended pregnancies (MacPhail et al., 2007).

High rate of abortion contributes significantly to maternal mortality. In Ghana, evidence shows that unsafe abortion contributes 22% to 30% of all maternal deaths, with a large proportion being attributed to young people (Ministry of Health, 2009). This can negatively affect the health of young women and increase maternal mortality in Ghana.

The median age at first pregnancy for girls was 17 years, and for making someone pregnant was 18 years for boys. The differential may reflect the fact that girls initiate sex earlier than boys, and also as demonstrated in this study, girls lack assertive skills to negotiate condom use during sexual intercourse and are comparatively less likely to use condoms. One significant explanation is that about 6 in 10 sexually active young girls in the study did not know their fertile period. This lack of knowledge put them at an elevated risk of becoming pregnant.

As expected, the study revealed that prevalence of pregnancy among young people increases with age. In the present study, pregnancy among younger adolescents aged 10-14 years was just about 3% and 47% among older adolescents 15-19 years, but the rate dramatically increases to more than 83% among young adults aged 20-24 years, consistent with the findings of Agyei et al., (2000). Generally, females were more likely to report pregnancy compared to males. Even though rural-urban differential by gender was not significant, among females, rural girls seem to report pregnancy as opposed to urban girls.

5.5.0 Influence of sexual communication on young people's sexual behaviour

Many scholars have established a strong relationship between parent child sexual communication and a range of sexual behaviours among young people (O'Donnell et al., 2001; Jaccard et al., 2002a; Thurman et al., 2006; Namisi et al., 2009; Wang, 2009; Littlejohn, 2010; Morgan et al., 2010). The outcomes of these studies were mixed, that sexual communication has positive, negative or no effect on sexual behaviours. This notwithstanding, many of the studies concluded that sexual communication encourages a

protective sexual behaviours among young people. Findings from the present study confirm those from other studies.

5.5.1 Association between age at sexual intercourse and sexual communication

Studies have demonstrated that the age at sexual initiation is associated with increased risk of unplanned pregnancy and STDs including HIV (McGrath et al., 2009); and that early sexual initiators are more likely to engage in multiple sexual partnerships and less likely to use condoms (Mazengia and Worku, 2009). Because of these risks associated with early sexual initiation, parent-child sexual communication becomes critical due to its potential protective effects on young people's sexual behaviour.

In the present study, age at first sex was regressed separately for daughters and sons, against selected communication variables. The findings indicated that both mothers' communication and timing of communication significantly influence the age at sexual debut for both daughters and sons. The negative beta values (Table 4.29) for the frequency of mother communication with both daughters and sons suggest that parents' communication has a negative effect on both daughters' and sons' age at sexual initiation. This indicates that young people who reported greater amounts of communication with their mother were younger at first sexual intercourse. This finding is consistent with a recent Ghanaian study (McQuestion et al., 2011), which found that knowing and talking about reproduction with parents were jointly associated with younger age at sexual initiation. A related study in Tanzania (Kawai et al., 2008) reported that parental communication was not associated with sexual initiation, while communication with teachers delayed initiation. In the USA, Clawson and Resse-Weber

(2003) in assessing the timing of sexual initiation reported that adolescents who received more communication from their parents were younger at sexual initiation.

On the other hand, studies have reported that higher frequency of fathers' communication with young people delays the onset of sexual intercourse (Clawson and Reese-Weber, 2003). However in the present study, no significant result was found for both daughters and sons communication with fathers.

It is generally expected that parents' communications would result in older age at sexual initiation, yet this study found the opposite. One of the possible explanations may be that many mothers initiate sexual talks after noticing the child was sexually involved. It is also possible that parents' communications about sex are not detailed enough to affect sexual behaviours, particularly when parents erroneously perceive that their children have not initiated sexual activity. This explanation is consistent with one offered by Beckett et al. (2010) who reported that many American parents and adolescents do not talk about important sexual topics before adolescent's initiate sexual intercourse. Similarly, Raffaelli et al. (1998) were of the opinion that parental communication might have a negative impact on young people's sexual behaviour. In their opinion, parent-child sexual communication with non-sexually active young people focuses on parental values, but parents shifted to discussion of real issues about sex after they discovered that children were sexually active.

Related to the above was the issue of timing of communication. Both daughters' and sons' reports of timing of sexual communication show that sons, relative to daughters, were more likely to delay sexual intercourse (Table 4.29). Consistent with earlier studies (Clawson and

Reese-Weber, 2003), the present study found that young people who received on-time sexual discussions were older at first sexual intercourse. Though a study by Atienzo et al. (2009) reported that on-time sexual communication did not have any effect on the age at sexual initiation among Mexican adolescents, the researchers strongly believed that on-time communication was protective against sexual risk behaviours.

Additionally, this study did not demonstrate any influence on easiness of communication on the age of sexual initiation, even though other studies such as (Lenciauskiene and Zaborskis, 2008) found an association between these variables. In particular, Lenciauskiene and Zaborskis (2008) observed that easy communication with parents, particularly with the mother, led to early sexual behaviour among young people, more especially for girls.

5.5.2 Relationship between sexual communication and lifetime sexual partners

Studies have reported that multiple factors determine the number of lifetime sexual partners; including two-parent family (Bakken and Winter, 2002), religiosity (Haglund and Fehring, 2010; Landor et al., 2011), fulfilling different needs (Carey et al., 2010) and masculinity power (Izugbara and Modo, 2007). Parental sexual communication also plays a central role in the number of lifetime sexual partners. In the present study, different communication variables predicted lifetime number of sexual partners for both daughters and sons. For daughters, for example, openness and easiness of communication were significant in determining lifetime sexual partners, whereas mother communication, timing of communication and easiness of communication and place of residence predicted the number of lifetime sexual partners for sons.

Young people's report of easiness (comfort) of communication is at variance with previous studies. For instance, one study among Latino youths in the USA found no relationship between comfort of communication and the number of sexual partnerships one had ever had (Deardorff et al., 2010). It appears that sons who received on-time communication from their parents were at risk of engaging more lifetime sexual partners ($\beta = -.35, p = 0.001$), but for daughters on-time discussion was non-significant ($\beta = -.07, p > 0.05$). Mother communication delays sons' onset of sexual intercourse, but not for daughters; while father communication did not have any effect on both sons and daughters' number of lifetime sexual partners.

5.5.3 Relationship between sexual communication and ever had sexual intercourse

There are inconsistent reports regarding the influence of parent-child sexual communication on sexual initiation. Numerous studies have concluded that sexual communication is protective (Hutchinson, 2002; Wang et al., 2007; Sneed, 2008; Kapungu et al., 2010), while others have reported a negative association (Babalola et al., 2005; Pearson et al., 2006).

In the present study, mother communication increased the odds of ever had sex; while timing of communication and openness of communication (for daughters only) reduced the likelihood of ever had sexual intercourse. Although fathers' communication unlike mothers' reduced the odds of ever has sexual intercourse, it did not reach statistical significance. Consistent with one study in Navrongo, northern Ghana (Muindi, 2006), the present study shows that mother communication is a risk factor for sexual initiation.

A possible reason that may explain this finding is that mothers generally talk more with their daughters as demonstrated in this study and others elsewhere. Perhaps daughters misconstrue

this form of increased frequency of maternal communication to mean mothers approval of sexual activity. On the other hand, parents who provide on-time communication with children might indicate to the children their sexual values. Because many parents concentrate their communication efforts on sexual risk prevention topics such as sexual abstinence, there is higher probability that parents who talk early to children might discuss and reinforce sexual abstinence messages than other topics like pregnancy and condom use. Consequently, young people who receive on-time sexual communication delay sexual initiation.

5.5.4 Relationship between sexual communication and condom use at first sex

Condom use at first sexual intercourse is an important behavioural modern preventive practice that protects young people from the risk of STDs and unintended pregnancy. Researches, including the present study have demonstrated that many young people fail to use condom at first sex (Adu-Mireku, 2003; Karim et al., 2003; Harrison et al., 2005; Wang et al., 2007). Previous studies have reported that demographic characteristics, such as gender influence condom use differently, yet studies do not always analyze females and males separately (Yotebieng et al., 2009). Hence, the present study investigated the association between parental communication and condom use at first sexual intercourse.

Evidence regarding the relationship between condom use and sexual communication has been contradictory. Some studies have reported that parent-child sexual communication leads to safer sex behaviours, and an increase in contraceptive use (Hutchinson and Cooney, 1998; Miller et al., 1998c; Schear, 2006), while other such as (Hadley et al., 2009) found no such relationships. Specifically, studies suggest that parent-child communication about sex and condom use have the potential to increase young peoples' condom use and decrease sexual

risk behaviour (Jaccard et al., 2002b; CDC, 2003) For example, a study conducted by the CDC (2003) reported that daughters of mothers who discussed condom use before first intercourse were three times more likely to use condoms than their counterparts whose mothers discussed condom use after the child had initiated sexual activity.

Contrary to the above report, the current study found no relationship between parental communication and daughters' condom use at first sex. That is to say that none of the five communication variables tested in the regression model was statistically significant. One of the possible reasons for this may be the lack of female assertiveness in sexual relationships, particularly condom use negotiation. This was apparent in this study, wherein bivariate association established that females largely depended on their male partners for decisions regarding condom use at first sex (see Section 5.4.3, paragraph 4). The same reason has been reported elsewhere (Rickert et al., 2002). According to Rickert and colleagues (2002), young women lack assertive skills to make their own decisions about contraceptives, including condoms, because they are more concerned about their partner's feelings and desires rather than their own. In particular, they perceive that they do not have the right to talk about protection and sexual safety. It is also possible that off-time communication from parents may also influence daughters' condom use at first sex.

Condom use by sons, was found to be negatively associated with general openness of communication in the bivariate analysis ($r = -.14$). When the data was stratified by gender during the regression procedures, only condom use by sons was associated with communication openness. In fact, condom use was positively associated with mother communication, but negatively with openness of communication in the regression model. This

suggests that mother's discussion with their sons increased the likelihood of sons' condom use at first sex; while parental openness in communication about sex reduces the likelihood of their sons' using condom at sexual initiation, consistent with other studies such as Manlove et al. (2008). A possible explanation underlying these findings might be that boys have a higher condom use efficacy relative to girls, as demonstrated in this study and others such as Glover et al. (2003). As a result, when parents especially, mothers openly discuss condom use with their sons, such talks were more likely to strengthen their condom use efficacy, thus influencing sons' condom use at first sex.

5.5.5 Relationship between sexual communication and contraceptive use in past three months

It was evident in this study that easiness and openness of communication with parents were negatively associated with contraceptive use over the previous three months for both daughters and sons (Table 4.34). This indicates that the more parents found it easy to talk to their children about sex with openness, the less likely the children will use contraceptives in past three months. Similar to the findings on condom use, mother communication predicted contraceptive use for sons, but not for daughters. This finding disagrees with the finding of one Ghanaian-based nationally representative study which reported that females were about 3 time more likely to report contraceptive use if they had had sexual talks with their parents (Biddlecom et al., 2009).

On the contrary, previous studies elsewhere support the above findings (Wellings et al., 1999; Ogle et al., 2008). For instance, Ogle et al. (2008) reported that teenage boys from the United Kingdom were more likely to use contraception compared to girls. Also, Manlove and

associates (2008) reported similar findings among a sample of young men in the USA, that specific communication about sex and contraception are associated with higher contraceptive and condom use among adolescents.

Various reasons have been adduced for the negative effect of parental communication on the use of contraception during sexual intercourse. When sexually experienced young people feel at ease (comfortable) and perceive parents to be open during sexual discussions, they may have the impression that sexual activities are legitimized, and consequently many fail to take precautions (Wight et al., 2006b). The decision to use condom or other contraceptive during intercourse is behavioural, and rests largely with the individual. When individual's attitude toward contraception is negative, particularly due to misconceptions, parental sexual communications might have minimal or no impact. Brown and Guthrie (2010) conducted a qualitative interview with post abortion-clients aged between 16 year and 20 years in northern England to identify reasons for non-contraception among the sample. They observed that the most common reasons for non-use of contraception was related to forgetting or 'not thinking', being in the mood, use of alcohol and pressure from their sexual partners not to use contraception (Brown and Guthrie, 2010).

Additionally, the present study showed that both father communication and timing of communication turned out to be unimportant toward contraceptive use by young people. This may be so because in the study, over 96% (Table 4.9) of fathers reported they had never discussed contraceptive use with their children. It therefore follows in such a situation that fathers' communication may not have any significant impact on their children's contraceptive use behaviours. In both quantitative and qualitative analyses, children cited lack of sex

education, religious values and lack of parental support as the main reason for not using contraceptives. On the other hand, majority of young people were apprehensive with regard to the use of contraceptives, largely due to misconceptions. Their concerns included side effects of contraceptives, especially fear of infertility; consistent with the reasons identified by Williamson et al. (2009) in a review of qualitative studies on the limits to the use of modern contraceptive use by young women in developing countries. It was therefore concluded that social disapproval of premarital sex couple with misconceptions about modern contraceptives, particularly that their use could cause infertility among young women was a major barrier to contraceptive use (Williamson et al., 2009). However, for sexually active fecund young people, effective contraception is the only sure means to prevent an unplanned pregnancy.

Taken together, the findings of the present study regarding contraceptive use was not surprising as it was similar to earlier research in Ghana by Karim et al. (2003), who found that communication with parents and family members about avoiding sex and contraception had only nominal effects among the young people.

5.5.6 Relationship between sexual communication and report of pregnancy

Earlier studies have demonstrated that young people who receive sexual information from their parents, especially on-time communication from both their fathers and mothers, were more likely to report that they had been pregnant or made someone pregnant (Pistella and Bonati, 1998; Clawson and Reese-Weber, 2003). However, the findings from the current study shows that after controlling for demographic covariates, none of the communication variables predicted young people's report of pregnancy or having made someone pregnant. Individual variables were regressed separately on pregnancy to verify whether there were any

suppression effects in the presence of others variables, but the results were consistent with what the model produced.

Though bivariate analysis found an association between report of pregnancy and communication easiness ($r = .13$), and of condom use ($r = -.17$), in the multivariate model, these associations diminished. The study findings reported in Section 5.5.4 indicate that many parents do not talk about contraceptives including condom. Likewise, many young people do not use contraceptive during sexual intercourse (Section 5.4.3). Thus parental communication may not have any meaningful influence on pregnancy.

In a review of some USA-based studies on parent-child sexual communication and youth risk behaviour, Miller et al. (2001) observed that various studies have reported very inconsistent associations between parental communication and report of pregnancy risk. The reviewers were of the view that the inconsistencies may be due to differences in methodologies employed to measure communication. (Miller et al., 2001). Yet in most of the studies, mother's communication was found to be more strongly associated with adolescent pregnancy risk than fathers' communication and a stronger effect for daughters compared to sons.

The above finding indicates that the association between parental communication and occurrence of pregnancy is not well understood. In the Ghanaian context, the result might imply that perhaps, some other variables rather than communication influence pregnancy behaviour. Research needs to investigate this phenomenon.

5.6.0 Strengths of the study

1. The study is one of the few in Ghana that systematically explored parent-child dyads' perspectives on sexual communication and sexual behaviour. Both sexes in parents and young people were studied, and thus provided greater insights into parent child sexual communication. This is an improvement over the designs of many previous studies that examined sexual communication from the perspectives of either parents or young people or mothers versus daughters/son. In addition, many of the previous studies covered only a limited scope of sexual communication; for example, a single topic, such as HIV/AIDS. The present study comprised detailed analysis of 20 specific sexual topics, and had produced results that describe the general pattern of sexual communication among parent-child pairs in the sample.
2. Generally, obtaining information on sexual behaviours is often difficult because of the sensitive nature of the subject; participants in this study appeared to be reasonably open in their responses as was observed in an earlier related study (Glover et al., 2003). Participants, particularly parents, exhibited very high interest on the subject matter of sexual communication, because some of the issues were practically difficult for them to handle. The higher level of openness and enthusiasm respondents demonstrated during interviews may imply higher validity of the study results.
3. Besides, the fact that young respondents were interviewed by interviewers who were of the same age as respondents (less than 25 years) tremendously reduced fear and stigmatization, and enhanced confidence, frankness and truthful responses from respondents.

4. Furthermore, it is worth mentioning that the methodology employed in this study ensured successful recruitment and interview of young adolescents 10-14 years on issues of sexuality.

5.7.0 Limitations of the study

The present study had certain limitations that need to be carefully considered in interpreting the findings and their contributions. The limitations of the study include the following:

1. The study was cross-sectional; and parent-child sexual communication and young people sexual behaviour variables were measured retrospectively. Thus the data come from respondents' recall or self-reported behaviours and views which could not be independently verified. However, the high degree of congruence between parent and child reports of communication (see Section 5.2.4) was an indication that recall bias may not be a serious problem in this study.
2. The cross-sectional design used for this study precluded the establishment of causality. Therefore the results must be interpreted purely as associations rather than causal relationships.
3. The study was conducted in the Brong Ahafo region only, out of the 10 regions of Ghana. Therefore findings may not necessarily represent the views of parents and young people in Ghana. In spite of this, previous studies such as the 2006 MICS and the 2008 DHS (GSS et al., 2008; GSS et al., 2009a) have demonstrated people in the Brong Ahafo region have similar characteristics as people from the other regions. Thus the results of the present study could largely be generalized for the entire country.

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

This chapter presents concluding remarks emanating from the study. In the light of the findings, specific recommendations are made to address the communication and sexual health needs of parents and young people.

6.1.0 Conclusions

The findings of this study challenge the notion that parent-child sexual communication in some Ghanaian societies is a taboo. Majority of parents in this study had ever discussed some aspects of sexual issues with their children, though discussions tended to be parent-initiated, parent-dominated, indirect, and often marked by warnings and threats. There was a high level of congruence in reports of occurrence of communication between parents and young people. Even though mothers communicate more with their children in both content and frequency compared to fathers, their communication had minimal effect on young people sexual behaviour and contraceptive use. While fathers talk much less with their children, their communication seemed to have greater potentials to influence their children's sexual behaviours.

Parental communications are centred more on sexual risk prevention topics because parents were more concerned about the safety of their children. In spite of the child safety concerns, parent-child communications about sex were ill-timed, for which majority of parents preferred to delay discussion until mid-adolescence, roughly when children are about age 15 years. Consequently, some of the parents who communicated with their children did so when the child might have initiated sex and had already formed a sexual behavioural pattern that may

be difficult to change through sexual communication. Within parent circles, family religiosity, parental sexual knowledge, parent discipline and parental trustworthiness were significant predictors of parental sexual communication habits. All these variables increase the odds of parents discussing sexual issues with their children.

Notwithstanding the high level of sexual communication among participants of this study, a fairly high proportion of young people (50% of females and 36% of males) appeared to be involved in sexual behaviours, for which some were considered risky to their health. This brings into question the mechanisms that operate sexual communication to influence sexual behaviour.

Different communication factors predicted different sexual behaviours separately for young men and women. In all, the timing of communication and mother communication appeared to be the most important variables in parent-child sexual communication. On-time communication delays sexual initiation for both young men and women, but if such communications emanated from mothers, young people were more likely to initiate sexual intercourse. This paradox should be looked at in future research employing different designs.

6.2.0 Recommendations

The findings of the study have important implications for public health practice in Ghana and in the Brong Ahafo region. Therefore, the following recommendations are suggested to the appropriate institutions.

6.2.1 Ghana Health Service and Civil Society Organizations

1. Sexual communication within families should begin early in life, before young people develop secondary sexual characteristics⁴⁴ or before they initiate sexual intercourse. The talks should be sustained throughout the adolescent years, and parents must endeavour to talk to their children about sex dispassionately, without prejudices.
2. Parents adequately know the importance of sexuality communication with their children; however, they need to be educated on the necessity of providing timely sexual communication. The GHS and NGOs in health as health educators should take up this educational role orient parents to provide age appropriate sexual communication to their children. In particular, one of the targets for such educational efforts should be to disabuse parents' minds that children are "too young" to receive sexuality education; and that early sexual communication may trigger early sexual activities since there is no evidence to support this notion. In addition, parents need to be educated on facts about sexuality so they could provide accurate sexual information to children.

⁴⁴ Development of breast (in girls), pubic hair, axillary hair, facial hair, testicles (in boys). These features are stimulated by hormones, and they appear during puberty.

3. Fathers' communications have a greater potential to influence their children's sexual behaviours. They should thus be encouraged to be closer to their children and be much more involved in sexual communication with children. The Ghana Health Service and civil society organizations involved in advocacy work should target fathers and motivate them to talk more to their children.
4. Civil society organizations, religious institutions and local or community-based NGOs should educate their members about sexuality. In particular the Ghana Health Service could facilitate this role by first conducting training of trainers for key religious leaders such as the clergymen/women, Imams, and those in-charge of men and women ministries of the various religions. This can spark off parent-child sexual communication in homes to bring about the needed communication change.

6.2.2 Ghana Education Service

1. The sex education component of the school health education programme (SHEP) in basic schools should be strengthened. Sex education teachers should indirectly involve parents by giving homework assignments to pupils/students to be completed jointly by parent and child. Through this process, parents, especially those who are apathetic and reluctant to discuss sex will be made to initiate sexual talks.
2. School authorities should seize the opportunity during Parent-Teacher Association meetings to orient parents and encourage them to communicate about sex at home.

6.2.3 Future research direction

1. The study did not investigate why some parents do not talk at all to children, and why others provide very little information to their children on certain sexual topics. Future research should examine these issues to provide empirical data for policy.
2. The present study was cross-sectional and causality could not be established. Future research should employ a longitudinal design to investigate parent-child sexual communication and young people's sexual behaviour to provide a more accurate data for critical assessment.
3. The study was unable to examine the quality of parent-child sexual communication. Future research should consider the quality of communication as this may significantly impact on knowledge, attitudes and behaviours.
4. The details of discussion on specific sexual topics were not addressed in this research. Future research needs to investigate the amount of information on specific sexual topics children receive from parents.

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APPENDICES

APPENDIX 1: MDGs ADOLESCENT HEALTH TARGETS AND OMEGA SQUARED

The Millennium Development Goals (MDGs) are eight international development goals that all the 193 United Nations member states together with 23 international organizations agreed to achieve by the year 2015. The MGDs were endorsed by governments in September 2000, and they aim at improving human well-being by reducing poverty, hunger, child and maternal mortality, ensuring education for all, controlling and managing diseases, tackling gender disparity, ensuring sustainable development and pursuing global partnerships. Five of the goals are related to young people.

MDGs related to young people

- Goal 2: achieving universal basic education;
- Goal 3: promoting gender equality and women empowerment;
- Goal 4: reducing child mortality;
- Goal 5: improving maternal health; and
- Goal 6: combating HIV/AIDS, malaria and other diseases.

Five (5) of the seven targets of the 2000 Adolescent Reproductive Health Policy

- motivating young people to increase the age of onset sexual activity, currently around 12, to older than 15 by 2010
- reducing the proportion of females who marry before age 18
- reducing the proportion of females younger than 20 who give birth by 50% by 2010 and by 80% by 2020
- reducing the incidence of STIs including HIV/AIDS among 15-24 year olds by 50% by 2010; and
- reducing the incidence of abortion among young people by 50% by 2010).

Omega squared formula

Robust formula for measuring effect size in ANOVA is given by:

$$\text{Omega squared } \omega^2 = \frac{SS_M - (df_M)MS_R}{SS_T + MS_R}$$

Interpretation of effect size values

Small effect = .01

Medium effect = .06

Large effect = .14

APPENDIX 2: YOUNG PEOPLE QUESTIONNAIRE**University of Ghana School of Public Health**

Project Title: Sexual Communication within Families and Influence on Sexual Behaviour and Contraception among Young People in the Brong Ahafo Region

YOUNG PEOPLE QUESTIONNAIRE

Respondent's ID: A	Name of Research Assistant: _____
Date of Interview: (dd/mm/yy) ____/____/____	Name of Supervisor: _____
District _____	District Code

SECTION A: DEMOGRAPHIC AND BACKGROUND INFORMATION

Please circle the number corresponding to the appropriate answer for each question

NO.	QUESTION	CODING CATEGORY	SKI P TO
A1	Sex of respondent	Male 1 Female 2	
A2	Place of residence (Name _____)	Rural 1 Urban 2	
A3	How old were you at your last birthday?	Age in completed years	
A4	Marital status	Single (Never Married) 1 Married 2 Divorced/Sepereted/Widowed 3 Cohabiting 4	
A5	Ethnicity	Akan 1 Ga/Dangme 2 Ewe 3 Mole-Dagbani 4 Other (specify _____) 5	
A6	What is the highest level of education you completed?	No Education 0 Primary 1 JSS/JHS 2 Technical/Commercial 3 Secondary 4 Post-Secondary Training Inst. 5 Tertiary 6 Other (Specify _____) 7	A10
A7	Are you currently attending school?	Yes 1 No 2	

NO.	QUESTION	CODING CATEGORY	SKIP TO
			A10
A8	At what level would you like to end your Schooling/education?	Primary 1 JHS 2 Technical/Commercial 3 Secondary 4 Training College 5 Tertiary 6 Other (Specify _____) 7	
A9	Compared to your mates, how do you rate your academic performance?	Poor 1 Good 2 Very Good 3 Excellent 4	
A10	Are you currently working for pay?	Yes 1 No 2	

NO.	QUESTION	CODING CATEGORY	SKIP TO
	Religiosity		
A11	What is your religion?	None 1 Christian 2 Muslim 3 Traditionalist 4	A17
A12	How often do you attend religious services?	Once a year or less 1 At least once every six months 2 At least once a month 3 At least once a week 4	
A13	How often do you pray on your own?	Never 1 Once a while 2 At least once a week (often) 3 At least once a day(very often) 4	
A14	Religion is important in your life.	Not at all important 1 Somehow important 2 Important 3 Very important 4	
A15	How often do you participate in religious youth group activities (meetings; work etc.)?	Once a year or less 1 At least once every six months 2 At least once a month 3 At least once a week 4	
	FAMILY CHARACTERISTICS		
A17	Whom do you live with?	Both parents 1 Mother 2 Father 3 Grandparents 4 Other family member 5 Other (specify _____) 6	
A18	How long have you been living continuously with your parent(s)?	Years	

		Always	99	
A19	How connected /close are you to your parents?	Not close	1	
		Somewhat close	2	
		Very close	3	
Parental Monitoring/Control				
A20	Do your parent(s) guardians enforce restrictions on your movements?	Yes	1	A22
		No	2	
A21	How would you rate the level of restriction?	Low	1	
		Moderate	2	
		High	3	
A22	How often do your parent(s)/guardian(s) know your where about?	Never	1	
		Occasionally	2	
		Sometimes	3	
		Most of the time	4	
		Always	5	
A23	Do your parents/guardians allow you to go to any place you please without asking?	Yes	1	
		No	2	
A24	Are your parents/guardians less strict than most parents in allowing you to go out to have fun with your friends?	Yes	1	
		No	2	
A25	How will you rate your mother's attitude towards premarital sex?	Strongly disapprove	1	
		Disapprove	2	
		Don't Know/Not sure	3	
		Approve	4	
		Strongly approve	5	
A26	How will you rate your father's attitude towards premarital sex?	Strongly disapprove	1	
		Disapprove	2	
		Don't Know/Not sure	3	
		Approve	4	
		Strongly approve	5	

SECTION B: PARENT-ADOLESCENT SEXUAL COMMUNICATION

NO.	QUESTION	CODING CATEGORY	SKIP TO
B1	Are your parents able to talk with you about things that are important to you?	Yes 1 No 2	
B2	Have your parents ever discussed sex-related matters with you?	Yes 1 No 2	
B3	If Yes, who discussed the sex-related matters with you? (Circle as many as apply)	My mother 1 My father 2 Both parents 3 Other (specify _____) 4 →	
B4	How would you rate the frequency of sexuality communication with your mother /father?	Once 1 A few times 2 Moderate amount 3 Often 4	
B5	How is it like talking to your parents about sexual and reproductive health matters?	Very difficult 1 Difficult 2	

		Normal 3 Easy 4 Very easy 5	
B6	Under what circumstance did your mother/father talked to you about sexuality?	In response to an event 1 Suspicion of sexual activity 2 I asked a question about sex 3 Parents own initiation 4 Other(specify_____ 5	
B7	To what extent has your parent's sexual communication with you influenced you?	Not at all 1 Somehow 2 Very much 3	
B8	If your answer in B8 is 2 or 3, in what ways have you been influenced?		
B9	If Yes, give reasons:		
B10	Apart from your mother/father, which other family member(s)/persons have talked to your child about sexual issues?	<i>List them!</i> 1 _____ 2 _____ 3 _____ 4 _____ 5 _____	

From the following statements, please indicate the extent to which you agree or disagree. Circle the number (code) corresponding to your answer in the spaces provided for each question.

	Question	1= Strongly disagree	2= Disagree	3= Neutral	4= Agree	5= Strongly agree
	Communication Process					
B11	Communication between my mother/father and I on sexual matters is mutually interactive	1	2	3	4	5
B12	My mother/father and I talk openly and freely about sexual topics.	1	2	3	4	5
B13	I can freely ask my mother/father anything I really want to know regarding sexual issues.	1	2	3	4	5
B14	My mother/father knows how to talk to me about sexual matters.	1	2	3	4	5
B15	When my mother/father talks to me about sexual topics, she/he warns or threatens me about the consequences.	1	2	3	4	5
B16	My mother/father tolerates my views when he/she talks to me about sexual issues.	1	2	3	4	5
B17	My mother/father does not feel confident when discussing sexual issues with me.	1	2	3	4	5
B18	My mother/father is not comfortable when discussing sexual issues with me.	1	2	3	4	5

B19	If I ask my mother/father questions about sexual issues, he/she thinks I am already doing those things.	1	2	3	4	5
B20	My mother/father is reluctant to talk to me about sexual matters.	1	2	3	4	5
B21	My mother/father thinks talking to me about sexual issues will spoil me (make me promiscuous).	1	2	3	4	5
B22	My mother/father feels shy to talk to me about sexual matters.	1	2	3	4	5
B23	My mother/father does not think it is necessary to talk to me about sexual matters	1	2	3	4	5
	Perceived Parental Knowledge, Trust & Availability					
B24	My mother/father knows enough about sexual matters to be able to talk to me	1	2	3	4	5
B25	I believe my mother/father gives good advice on sexual issues.	1	2	3	4	5
B26	The advice my mother/father gives me on sexual issues answers my sexual health concerns	1	2	3	4	5
B27	I go to my mother/father for help when I need good advice on sexual matters.	1	2	3	4	5
B28	I trust my mother/father when we talk about sexual matters.	1	2	3	4	5
B29	My mother/father keeps his/her promises to me when we talk about sexual issues.	1	2	3	4	5
B30	My mother/father is honest with me.	1	2	3	4	5
B31	My mother/father really means whatever he/she tells me.	1	2	3	4	5
B32	It is difficult for my mother/father to find time to talk about sexual issues with me.	1	2	3	4	5
B33	My mother/father is too busy when I want him/her to talk with me about sexual matters.	1	2	3	4	5
B34	My mother/father has trouble finding time to talk with me about sexual issues.	1	2	3	4	5

Specific Sex-Related Communication											
<i>For each statement, circle the appropriate answer choice for both mother and father, and then enter age (in completed years) in the boxes provided.</i>											
QUESTION		MOTHER					FATHER				
		0= Never	1= A few times	2= Moderate Amount	3= Often	If Yes, at what age? (In completed years)	0 Never	1= A few times	2= Moderate Amount	3= Often	If Yes, at what age? (In completed years)
B35	Physical development	0	1	2	3		0	1	2	3	

	/change											
B36	Puberty	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B37	If yes, what did you discuss about puberty? List them!											
B38	Menstruation (Girls only)	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B39	Wet dreams (Boys Only)	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B40	Sexual feelings	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B41	Masturbation	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B42	How to prevent sexually transmitted diseases (STDs)	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B43	How to prevent HIV/AIDS	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B44	Abstaining from sex until marriage	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B45	Use of condoms	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B46	Contraceptives	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B47	How pregnancy occurs / how to prevent pregnancy	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B48	Abortion	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B49	Reproduction/having babies	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B50	Consequences of premarital sex	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B51	Choosing sexual partners	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B52	How to handle sexual pressure	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B53	Safer sex	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B54	Consequences of premarital sex	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B55	Substance use (alcohol, smoking, etc.)	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B56	When to start having sexual intercourse	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	
B57	Homosexual / Lesbianism	0	1	2	3	☐ ☐	0	1	2	3	☐ ☐	

B58. Is it important for your parents to talk to you about sexual and reproductive health? Yes1 No....2

SECTION C: ADOLESCENT SEXUAL BEHAVIOUR AND CONTRACEPTIVE USE

NO.	QUESTION	CODING CATEGORY	SKIP TO
C1	Have you ever been in a relationship with a male or female (<i>boyfriend/girlfriend</i>)?	Yes 1 No 2	→ C41
C2	Do you currently have a sexual partner (<i>boyfriend/girlfriend</i>)?	Yes 1 No 2	
C3	How many sexual partners (<i>boyfriend/girlfriend</i>) have you had in your lifetime?		
C4	Within the last 3 months, how many sexual partners (<i>boyfriend/girlfriend</i>) have you had?		
C5	Within the last 12 months, how many sexual partners have you had?		
C6	Have you ever had sexual intercourse?	Yes 1 No 2	→ C23
C7	If Yes, what was your age when you first had sexual intercourse?	(<i>Age in completed years</i>) 	
C8	How will you describe your first sexual relation	Own will 1 Coaxed 2 Forced 3	
C9	Within the past 3 months, how many times have you engaged in sexual intercourse?		
C10	Within the last 12 months, how many casual sex partners have you had?		
C11	Do you feel any pressure from others to have sexual intercourse? IF YES, a great deal or a little?	None 1 A little 2 A great deal 3	
C12	From whom do you feel the pressure? Probe & circle all that apply	Friends 1 Relatives 2 Work colleagues 3 Partner/special friend 4 Other _____ 5	
C13	Have you ever had sexual intercourse in exchange for cash or gift?	Yes 1 No 2	
Contraceptive Use			
C14	The first time you had sexual intercourse, did you use a condom?	Yes 1 No 2	

C15	If NO, did you use any of these methods?	Diaphragm 01 Emergency CP 02 Injectables 03 Foam/Jelly 04 Implants 05 IUDs 06	Pill 07 Withdrawal 08 Periodic abstinence 09 LAM 10 Sterilization 11 Other12
C16	Who suggested the use of a condom /contraceptive during sex?	Myself 1 My partner 2 Joint decision 3	
C17	Why did you use a condom /contraceptive?	To prevent pregnancy..... 1 To prevent STIs & HIV/AIDS... 2 To prevent both pregnancy & STIs/HIV/AIDS 3 No particular reason 4 Other 5	
C18	Did you use a contraceptive the last time you had sexual intercourse?	Yes 1 No 2	→ C21
C19	If yes, state the type of contraceptive you used.	Diaphragm 01 Male condom 02 Female Condoms 03 Emergency CP 04 Injectables 05 Foam/Jelly 06 Implants 07	IUDs 08 Pill 09 Withdrawal 10 Periodic abstinence 11 LAM 12 Sterilization 13 Other) 14
C20	Who suggested the use of contraceptives during sex?	Myself 1 My partner 2 Joint decision 3	
C21	If NO to C18, what prevented you and your partner from using a contraceptive device?	Not available 1 Didn't think of it 2 Too expensive 3 Partner objected 4	Don't like them 5 It was not necessary 6 Prevents enjoyment 7 Other 8 Don't know 99
C22	When you had sexual intercourse during the past 3 months, how much of the time, if any,	Never 1 Occasionally 2	

	did you and your partner use any contraceptive (e.g. the pill, a condom etc.)?	Sometimes 3 Most of the time 4 Always 5																																																									
C23	Have you heard about family planning?	Yes 1 No 2	→ C32																																																								
C24	If yes, where did you hear about it	Specify _____																																																									
C25	Which methods have you heard of or used? (Circle as many as apply.)	<table border="0"> <tr> <td>Heard of</td><td></td><td>Used</td><td></td></tr> <tr> <td>Diaphragm</td><td>1</td><td>Diaphragm</td><td>1</td></tr> <tr> <td>M-Condoms</td><td>2</td><td>M-Condoms</td><td>2</td></tr> <tr> <td>F-Condoms</td><td>3</td><td>F-Condoms</td><td>3</td></tr> <tr> <td>Emergency CP</td><td>4</td><td>Emergency CP</td><td>4</td></tr> <tr> <td>Injectables</td><td>5</td><td>Injectables</td><td>5</td></tr> <tr> <td>Foam/Jelly</td><td>6</td><td>Foam/Jelly</td><td>6</td></tr> <tr> <td>Implants</td><td>7</td><td>Implants</td><td>7</td></tr> <tr> <td>IUD</td><td>8</td><td>IUD</td><td>8</td></tr> <tr> <td>Pill</td><td>9</td><td>Pill</td><td>9</td></tr> <tr> <td>Withdrawal</td><td>10</td><td>Withdrawal</td><td>10</td></tr> <tr> <td>Periodic abstinence</td><td>11</td><td>Periodic abstinence</td><td></td></tr> <tr> <td>LAM</td><td>12</td><td>LAM</td><td>12</td></tr> <tr> <td>Sterilization</td><td>13</td><td>Sterilization</td><td>13</td></tr> </table>	Heard of		Used		Diaphragm	1	Diaphragm	1	M-Condoms	2	M-Condoms	2	F-Condoms	3	F-Condoms	3	Emergency CP	4	Emergency CP	4	Injectables	5	Injectables	5	Foam/Jelly	6	Foam/Jelly	6	Implants	7	Implants	7	IUD	8	IUD	8	Pill	9	Pill	9	Withdrawal	10	Withdrawal	10	Periodic abstinence	11	Periodic abstinence		LAM	12	LAM	12	Sterilization	13	Sterilization	13	
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C26	Who in your opinion should do family planning?	Married couples only 1 All sexually active persons 2 Don't know 3																																																									
For those who have NEVER HAD SEX, skip to C41; otherwise continue																																																											
C27	Have you ever used anything or tried in any way to delay or avoid getting pregnant?	Yes 1 No 2																																																									
C28	What did you use or do?																																																										
C29	Are you currently doing something or using any method to delay or avoid getting pregnant?	Yes 1 No 2																																																									
C30	If yes, which method are you using?																																																										
C31	Where do you get this commodity? (Mention the item you recorded in C25)	Pharmacy/Drug store 1 Hospital /Clinic 2 Family Planning/PPAG Clinic 3 CBDs/Fieldworker 4 Other _____																																																									
C32	Would you like to delay getting pregnant?	Yes.....1 No2																																																									
C33	For how long would you like to delay getting pregnant?	Months Years..... Don't Know 99																																																									
C34	Which factors do you think prevent teenagers from using contraceptives (circle as many as apply)	Cultural values 1 Religious values 2 Parents not encouraging them to us 3																																																									

		Media not promoting contraceptive use 4 Lack of access to contraceptives 5 Health workers attitudes 6 Lack of sex education 7 Other_____ 8
C35	Have you ever been pregnant OR made someone pregnant?	Yes 1 No 2 → C41
C36	If yes, how many times?	
C37	How old were you when you first became pregnant or made someone pregnant?	(Age in completed years)
C38	What happened to the pregnancy/pregnancies? (Circle all that apply)	Resulted in live birth 1 Miscarried 2 Aborted 3 Currently pregnant 4
C39	FEMALES: At the time you first became pregnant; did you want to become pregnant then? MALES: At the time you made someone pregnant, did you intend to make her pregnant?	Yes 1 Not at all 2 Later 3
C40	Reason(s) if you answered 1 or 3?	
C41	Can one become pregnant after one sexual intercourse?	Yes 1 No 2 Don't know 3
C42	When in the menstrual cycle can a woman become pregnant?	A week before her period 1 During her period 2 Half-way between periods 3 Don't know 4

THIS PAGE IS ONLY FOR THOSE WHO HAVE NEVER EXPERIENCED SEXUAL INTERCOURSE

C43	People may have mixed reasons for not having sexual intercourse. I will read out some reasons. Please tell me for each reason whether it applies to you or not (Treat each item independently)	Applies	Does not apply	Don't Know/ Not sure	SKIP TO
	(a) I don't feel ready to have sex	1	2	3	
	(b) I have not had the opportunity	1	2	3	
	(c) I think that sex before marriage is wrong	1	2	3	
	(d) I am afraid of getting pregnant	1	2	3	
	(e) I am afraid of getting HIV/AIDS	1	2	3	
	(f) I am afraid of getting other sexually transmitted infections	1	2	3	
	(g) I am afraid of my parents	1	2	3	
C44	And now I have questions about your future plans about sexual intercourse. Which of these statements best describes your plans? READ OUT (a) I plan to wait until marriage (b) I plan to wait until I am engaged to be married (c) I plan to wait until I find someone I love (d) I plan to have sexual intercourse when an opportunity comes along (e) I plan to complete my education (f) I plan to finish my vocational training	(a) Marriage (b) Engagement (c) Love (d) Opportunity (e) Finish School (f) Finish Voc. Training	1 2 3 4 5 6		
C45	Do you feel any pressure from others to have sexual intercourse? IF YES, a great deal or a little?	None A little A great deal	1 2 3	→ C47	
C46	From whom do you feel the pressure? Probe & circle all that apply	Friends Relatives Work colleagues Partner/special friend Other _____	1 2 3 4 5		
C47	Have you heard about family planning?	Yes No	1 2	→ END	
C48	If yes, where did you hear about it	Specify _____			

C49	Which family planning methods have you heard of or used? (<i>Circle as many as apply.</i>)	Diaphragm 1 M-Condoms 2 F-Condoms 3 Emergency CP 4 Injectables 5 Foam/Jelly 6 Implants 7	IUD 8 Pill 9 Withdrawal 10 Periodic abstinence 11 LAM 12 Sterilization 13
C50	Who in your opinion should do family planning?	Married couples only 1 All sexually active persons 2 Don't know 3	
	Any general comments?		

Thank you very much for your time.



APPENDIX 3: PARENT QUESTIONNAIRE**University of Ghana School of Public Health**

Project Title: Sexual Communication within Families and Influence on Sexual Behaviour and Contraception among Young People in the Brong Ahafo Region

PARENT QUESTIONNAIRE

Respondent's ID: <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>P</td><td></td><td></td><td></td></tr></table>	P				Name of Research Assistant: _____
P					
Date of Interview: (dd/mm/yy) ____/____/____	Name of Supervisor: _____				
District _____	District Code <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td><td></td><td></td></tr></table>				

SECTION A: DEMOGRAPHIC AND BACKGROUND INFORMATION

NO.	QUESTION	CODING CATEGORY	SKIP TO
A1	Sex of respondent	Male 1 Female 2	
A2	Place of residence (Name_____)	Rural 1 Urban 2	
A3	How old were you at your last birthday?	Age in completed years	
A4	Marital status	Single (Nerver Married) 1 Married 2 Divorced/Separeted/Widowed 3 Cohabiting 4	
A5	Ethnicity	Akan 1 Ga/Dangme 2 Ewe 3 Mole-Dagbani 4 Other (specify_____) 5	
A6	What is the highest level of education you have completed?	No Education 1 Primary 2 Middle/JSS/JHS 3 Technical/Commercial 4 Secondary 5 Post-Secondary Training Inst. 6 Tertiary 7 Other (Specify_____) 8	

NO.	QUESTION	CODING CATEGORY	SKIP TO
A7	What is your Occupation?	Unemployed 1 Farmer 2 Trader 3 Artisan 4 Public sector 5 Private sector 6 Other _____ 7	

NO.	QUESTION	CODING CATEGORY	SKIP TO
	<i>Family Religiosity</i>		
A8	What is your religion?	Christian 1 Muslim 2 Traditionalist 3 None 4	
A9	Members of this family often attend religious services.	Strongly disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly agree 5	
A10	Religion is important in this family.	Strongly disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly agree 5	
A11	Members of this family often pray/worship together at home.	Strongly disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly agree 5	
A12	Do your family members belong to any religious groups <i>e.g. choir, men/women's fellowship, youth groups etc?</i>	Yes 1 No 2	A14
A13	Members of my family often participate in religious group activities (choir meetings, work).	Strongly disagree 1 Disagree 2 Neutral 3 Agree 4 Strongly agree 5	
A14	How will you describe this family?	Two-parent home 1 Single-parent (mother) 2 Single-parent (father) 3	

		Other (specify _____) 4	
Parental Monitoring /Control			
A15	Do you enforce restrictions on your adolescent child (name)?	Yes 1 No 2	A17
A16	How would you rate the level of restriction?	Very high 1 Moderate 2 Low 3	
A17	How often do you know your child's where about (eg after school, at nights, on weekends etc)?	Never 1 Occasionally 2 Sometimes 3 Most of the time 4 Always 5	
A18	Do you allow your child (name) to go to any place he/she pleases without asking?	Yes 1 No 2	
A19	In your opinion, are you less strict than most parents/guardians in letting child have fun with their friends?	Yes 1 No 2	
A20	If you were to talk to your child about sexuality, what are the possible topics you would cover? List them!		

SECTION B: PARENT-ADOLESCENT COMMUNICATION

NO.	QUESTION	CODING CATEGORY	SKIP TO
B1	Are you able to talk with your child (name) about things that are important to him/her?	Yes 1 No 2	
B2	Have you ever discussed sex-related matters with your child (name)?	Yes 1 No 2	
B3	If Yes/No to B2, why? If NO		→ B6
B4	If YES to B2, how will you rate the frequency of your sexual talks with your child?	Once 1 A few times 2 Moderate amount 3 Often 4	→
B5	How (difficult or easy) is it to talk with your child (name) about sexual matters?	Very difficult 1 Difficult 2 Normal 3 Easy 4 Very easy 5	

B6	Under what circumstance was communication initiated?	In response to an event 1 Suspicion of sexual activity 2 He/ She asked a question about sex 3 Parents own initiation 4 Other(specify _____) 5
B7	At what age do you think is most appropriate to talk to your child about sexual matters?	
B8	To what extent has sexual communication with your child influenced him/her?	Not at all 1 Somehow 2 Very much 3
B9	If your answer in B8 is 2 or 3, in what ways has he/she been influenced?	
B10	If Yes, give reasons?	
B11	Apart from yourself, which other family member(s)/persons have talked to your child about sexual issues?	<i>List them!</i> 1 _____ 2 _____ 3 _____ 4 _____ 5 _____

From the following statements, please indicate the extent to which you agree or disagree. Circle the number (code) corresponding to your answer in the spaces provided for each question.

How would you rate your knowledge & understanding of the following sexual terms? <i>Probe to ensure that the respondent understands each term, otherwise score 1.</i>		1. Not at all 2. A bit 3. Moderately 4. Very well 5. Thoroughly	Have you ever talked to your child about the following sexual issues?		0= Never	1= Once	2= A few times	3= Often	If Ever, at what age?
B12	Physical development /changes		B11B	Physical development	0	1	2	3	
B13	Puberty		B12B	Puberty	0	1	2	3	
B14	Menstruation (Girls only)		B13B	Menstruation (Girls only)	0	1	2	3	
B15	Wet dreams (Boy sonly)		B14B	Wet dreams? (Boys only)	0	1	2	3	
B16	Sexual feelings		B15B	Sexual feelings	0	1	2	3	
B17	Masturbation		B16B	Masturbation	0	1	2	3	

B18	How to prevent Sexually Transmitted Diseases		B17B	Sexually Transmitted Diseases	0	1	2	3	☐ ☐
B19	How to prevent AIDS/HIV		B18B	HIV /AIDS	0	1	2	3	☐ ☐
B20	Abstaining from sex until marriage		B19B	Abstaining from sex	0	1	2	3	☐ ☐
B21	Condoms use		B20B	Condoms use	0	1	2	3	☐ ☐
B22	Contraceptives		B21B	Contraceptives	0	1	2	3	☐ ☐
B23	How pregnancy occurs/ how to prevent pregnancy		B22B	How pregnancy occurs	0	1	2	3	☐ ☐
B24	Abortion		B23B	Abortion	0	1	2	3	☐ ☐
B25	Reproduction/having babies		B24B	Reproduction /having babies	0	1	2	3	☐ ☐
B26	Consequences of premarital sex		B25B	Consequences of premarital sex?	0	1	2	3	☐ ☐
B27	Choosing sexual partners?		B26B	Choosing sexual partners	0	1	2	3	☐ ☐
B28	How to handle sexual pressures		B27B	Handling sexual pressures	0	1	2	3	☐ ☐
B29	Safer sex		B28B	Safer sex	0	1	2	3	☐ ☐
B30	Consequences of premarital sex		B28B	Consequences of premarital sex	0	1	2	3	☐ ☐
B31	Substance use (alcohol, smoking etc.)		B29B	Substance use	0	1	2	3	☐ ☐
B32	When to start having sexual intercourse		B30B	When to start having sexual intercourse	0	1	2	3	☐ ☐
B33	Homosexual / Lesbianism		B31B	Homosexual / Lesbianism	0	1	2	3	☐ ☐

<i>From the following statements, please indicate the extent to which you agree or disagree. Circle the number (code) corresponding to your answer in the spaces provided for each question.</i>						
	Question	1= Strongly disagree	2= Disagree	3= Neutral	4= Agree	5= Strongl y agree
	Communication Process					
B34	Communication between my child and I on sexual matters is mutually interactive	1	2	3	4	5
B35	My child and I talk openly and freely about sexual topics.	1	2	3	4	5
B36	My child can freely ask me the questions he/she really wants to know regarding sexual issues	1	2	3	4	5
B37	I know how to talk to my child about sexual matters	1	2	3	4	5
B38	My discussions with (name) concerning sexual topics are marked by warnings or threats regarding the consequences.	1	2	3	4	5
B39	I don't tolerate my child's views when I talk to his/her about sexual issues.	1	2	3	4	5
B40	I don't feel confident when discussing sexual topics with my child.	1	2	3	4	5
B41	I am uncomfortable when discussing sexual topics with my child.	1	2	3	4	5
B42	If my child asks me questions about sexual issues, it means she/he is already doing those things.	1	2	3	4	5
B43	I am reluctant to talk to my child about sexual and reproductive health matters	1	2	3	4	5
B44	Talking to my child about sexual issues will spoil him/her (make him/her promiscuous).	1	2	3	4	5
B45	I feel shy to talk to my child about sexual matters.	1	2	3	4	5
B46	I don't think it is necessary for me to talk to my child about sexual issues.	1	2	3	4	5
	Perceived Parental Knowledge, Trust & Availability					
B47	I don't think I know enough about sexual and reproductive health matters to be able to talk to my child about these.	1	2	3	4	5
B48	I believe I give good advice on sexuality to my child.	1	2	3	4	5
B49	The advice I give to my child on sexual issues answers his/her sexual concerns.	1	2	3	4	5
B50	My child comes to me for help when he/she needs good advice on sexual issues.	1	2	3	4	5
B51	I think my child trusts me when we talk about sexual matters.	1	2	3	4	5

B52	I keep my promises to my child when we talk.	1	2	3	4	5
B53	I think I am honest with my child.	1	2	3	4	5
B54	I really mean whatever I tell my child.	1	2	3	4	5
B55	It is difficult for me to find time to talk about sexuality issues with my child.	1	2	3	4	5
B56	I find myself too busy when my child wants to talk with me about things relating to sexuality,	1	2	3	4	5
B57	I have trouble finding time to talk with my child about sexuality issues.	1	2	3	4	5

SECTION C: ADOLESCENT SEXUAL BEHAVIOUR AND CONTRACEPTION				SKIP TO
Parental Permissiveness				
C1	Would you allow of your child to engage in sexual activity before marriage?	Disallow Indifferent Allow	1 2 3	
C2	Is it okay for your DAUGHTER to engage in sexual activity before marriage?	Yes No	1 2	
C3	Is it okay for your SON to engage in sexual activity before marriage?	Yes No	1 2	
C4	How would you feel if you found that your child is already sexually active?	Okay Neutral Disappointed	1 2 3	
C5	How would you react if you found that your child is already sexually active?	Advice him/her to quit Advice him/her on safer sex Warn or threaten him/her Punish him/her Other _____	1 2 3 4 5	
C6	Will you allow your child to use condoms if she/he is sexually active?	Disallow Indifferent Allow	1 2 3	
C7	Give reasons for your answer.			
C8	Will you allow your child to use contraceptives if she/he is sexually active?	Disallow Indifferent Allow	1 2 3	
C9	Give reasons for your answer.			

C10	Do you know whether your child currently has a sexual partner (<i>boyfriend/girlfriend</i>)?	Yes 1 No 2 Don't know 3	
C11	Do you know whether your child has ever been in a sexual relationship (<i>boyfriend/girlfriend</i>)?	Yes 1 No 2 Don't know 3	
C12	If yes, how many sexual partners (<i>boyfriend/girlfriend</i>) has he/she had in his/her lifetime?		
C13	Do you think your child has ever had sexual intercourse?	Yes 1 No 2 Don't know/ not sure 3	→ D1 → D1
C14	If yes, how did you find out?	He/she told me 1 Noticed a change in behaviour 2 Told by her friends 3 Other relatives told me 4	
C15	At what age did he/she start having sexual intercourse? (<i>Record age in completed years</i>)		

SECTION D: FAMILY SOCIOECONOMIC STATUS

D1	Does your household have:	YES	NO	
	Electricity?	Electricity..... 1	0	
	A radio?	Radio..... 1	0	
	A television?	Television..... 1	0	
	A video deck or CD/DVD player?	Video deck or CD/DVD player..... 1	0	
	A refrigerator?	Refrigerator..... 1	0	
	A freezer?	Freezer..... 1	0	
	A mobile telephone?	Mobile Telephone..... 1	0	
	A non-mobile telephone?	Non-mobile Telephone..... 1	0	
	A Computer?	Computer..... 1	0	
	A fan?	Fan..... 1	0	
	A bicycle?	Bicycle..... 1	0	
	A motorbike?	Motorbike..... 1	0	
	A car?	Car..... 1	0	
	A tractor?	Tractor..... 1	0	
D2	Does this household own any livestock, herd or any other farm animal or poultry?	Yes 1 No 2		
	<i>If YES, please indicate how many. If none, enter 00</i>			
	Cattle			
	Horse/Donkey			
	Goats			
	Sheep			
	Pigs			
	Rabbit			
	Grasscutter			
	Chicken			
	Other poultry			

D2	Main material of the floor. (Observe and record)	Earth/Sand/Mud 1 Wood/Palm/Bamboo 2 Cement floor 3 Terrazzo 4 Ceramic tiles 5	
D3	Main source of drinking water for household members	River/stream/spring/pond/lake 1 Water from open well 2 Water from covered well/borehole 3 Piped water 4 Bottled/sachet water 5	
D4	Main method for sewage disposal	Dumped around house 1 Refuse dump 2 Burned/buried 3 Car Collection 4	
D5	Main toilet facility for household members	No facility/bush 1 Bucket/pan 2 Pit latrine with slab 3 Ventilated improved Pit latrine (KVIP) 4 Flush toilet 5	
D6	What type of fuel does your household normally use for cooking?	Firewood 1 Saw Dust 2 Charcoal 3 Kerosene 4 LP Gas 5 Electricity 6 Other_____ 7	
Any General Comments:			

Thank you very much for your time!

APPENDIX 4: IN-DEPTH INTERVIEW GUIDE FOR YOUNG PEOPLE

Greet; introduce yourself and the purpose of the study being undertaken.

This study is seeking your opinion about sexual communication between you and your parents, and how such communication influences your sexual behaviour. When I say parent-child sexual communication, I mean your parents talking to you about sexual issues such as puberty, reproduction, pregnancy, abortion, sexual intercourse, sexually transmitted infections (STIs) including HIV/AIDS, etc. I'm also talking about the consequences of sexual risk behaviour among adolescents and whether they are using protection to prevent pregnancy, STIs and HIV when they have sex.

A. BACKGROUND CHARACTERISTICS

1. Demographics: age, sex, marital status, current occupation, level of education completed, etc.
2. What is your religion?
3. Whom do you live with? What is your relationship with this person?
4. How close are you to your parents or the person you live with? Probe!
5. Do you have the freedom to go anywhere you want to go to? Probe parental restriction?
6. Will your parents/guardian allow you to engage in premarital sex? Ask for attitude of mother and father separately.

B. PARENT-ADOLESCENT SEXUAL COMMUNICATION

1. Are your parents able to talk to you about things that are important to you?
2. Have they ever discussed sexual matters with you? What sexual matters did the conversation centre on? Probe! *Sexual and reproductive health issues*
3. Who discussed sexual issues, mother or father and what did they say? Why?
4. Who else apart from parents discussed sexual and reproductive health issues with you?
5. What brought about the sexual discussion?
6. How is it like discussing sexual issues with your parents? Are they open?
 - a. Are you warned or threatened? b. Are you free to express your views? C. Do they tolerate your views?
7. Confidence level and comfortable level? Probe!
8. Are your parents knowledgeable in sexual and reproductive health issues?
9. Do you trust what they tell you? Why?
10. Are they always available to discuss issues with you?
11. What are some of the sexual issues your parents have discussed with you? (Prompt; puberty, menstruation, STDs, HIV/AIDS, sexual intercourse, pregnancy, abortion, reproduction, consequences of premarital sex, sexual pressures etc)
12. What sexual topics do you think are important for your parents to discuss with you?

C: SEXUAL BEHAVIOUR AND CONTRACEPTIVE USE

1. Why do you think young people to go into sexual relationships? (*Probe*)
2. What forces young people to have sex, especially unprotected sex?
3. Have you ever had sexual intercourse with a boy or girl? **If NO, ask Questions 6, 7, 8, 11 and 12.** If **YES**, ask of number of sexual partners and current relationship. What was your age when you first had sexual intercourse?
4. Why did you engage in sex at this time?
5. how many sexual partners had have had in your lifetime? (**regular boyfriends/girlfriends and casual sex partners**)
6. Can you tell me how and why they came into your sexual life? (Ask about regular & casuals).
 - a. During your first sex did use do anything to protect yourself? Why?
7. What are the various ways one can protect him/her self against pregnancy? How about STDs and HIV/AIDS?
8. What do you think prevent young people from using contraceptives?
9. Have you ever been pregnant? Did you intend to be pregnant? Why?
10. What happened to the pregnancy
11. Do you feel pressured to have sex? From whom?
12. At what age and at what time do you want to start sexual intercourse?

APPENDIX 5: IN-DEPTH INTERVIEW GUIDE FOR PARENTS

Greet! Introduce yourself and the purpose of the study being undertaken.

This study is primarily interested in your opinions about sexual communication between you and your adolescents, and how such communication influences his/her sexual behaviour. When I say parent-adolescent sexual communication, what I mean is talking to the child about sexual issues such as puberty, reproduction, pregnancy, abortion, sexual intercourse, sexually transmitted infections (STIs) including HIV/AIDS, etc. I'm also talking about the consequences of sexual behaviour among adolescents and whether they are using protection to prevent pregnancy, STIs and HIV when they have sex.

A. BACKGROUND CHARACTERISTICS

1. Demographics: age, sex, marital status, current occupation, level of education completed, religious affiliation etc.
2. Importance of religion to your family
3. How close are you to your child? Probe!
4. Do you allow him/her the freedom to go anywhere he/she wants to go to? Probe parental restrictions?
5. What is your opinion about premarital sex? Probe parental attitude.

B. PARENT-ADOLESCENT COMMUNICATION

1. What kind of personal things do you talk about with your child?
2. What is the nature of communication between you and your child? Is it open and mutually interactive?
 - a. How do you communication with him/her on sexual matters? Probe! .
 - b. Is he/she free to express his/her views? c. Do you tolerate his/her views?
3. How confident are you in discussing sexual issues with your child? Do you feel comfortable? Probe!
4. What sexual matters have you discussed with your child? (Prompt; puberty, menstruation, STDs, HIV/AIDS, sexual intercourse, pregnancy, abortion, reproduction, consequences of premarital sex, sexual pressures etc). Why did you talk about these things?
 - a. In what ways does what you talk about differ for girls compared to boys? Which, if any, of these conversations have adolescents initiated with you?
5. How well do you know about these topics you mentioned
6. Does your child trust what they tell him/her?
7. What is the appropriate age to talk to your child about sexuality? Why?
8. How important is it to discuss sexuality with your child?
9. What do you think are the major sexual health issues for young people? If not mentioned, ask: HIV/AIDS? Unintended pregnancy? Probe.
 - o What are some of the reasons why you see these as important issues?
 - o How do these issues differ for girls compared to boys? How about those married/ not married

C: SEXUAL BEHAVIOUR AND CONTRACEPTIVE USE

- 1 Do you know whether your child (name) has ever had a sexual intercourse with a man/woman?
- 2 How did you find out? What did you do and why?
- 3 What is your opinion about premarital sex? (i) Is it okay for boys to engage in premarital sex? (ii) Is it okay for girls to engage in premarital sex?
- 4 If you found that your child is sexually active, what will you do?
- 5 Do you think sexual communication with your child can influence his/her sexual behaviour? Why?
- 6 What kind of contraceptives can young people use?
- 7 Have you talked to your child about contraceptive choices?

APPENDIX 6: ETHICAL CLEARANCE

GHANA HEALTH SERVICE ETHICAL REVIEW COMMITTEE

In case of reply the number and date of this letter should be quoted

*My Ref: GHS-ERC/ J
Your Ref: No*


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ABUBAKAR A. MANU, Principal Investigator

ETHICAL CLEARANCE - ID NO: GHS-ERC 22/3/09

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol titled:

"Sexuality Communication within Facilities and Influence on Sexual Behaviour and Contraception among Young People in the Brong Ahafo Region"

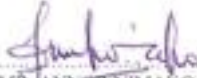
This approval requires that you submit periodic review of the protocol to the Committee and a final full review to the Ethical Review Committee (ERC) on completion of the study. The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Please note that any modification of the project must be submitted to the ERC for review and approval before its implementation.

You are also required to report all serious adverse events related to this study to the ERC within seven days verbally and fourteen days in writing.

You are requested to inform the ERC and your mother organization before any publication of the research findings.

Please always quote the protocol identification number in all future correspondence in relation to this protocol

SIGNED 
MR. ANNOR NIMAKO
(GHS-ERC VICE CHAIRMAN)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra

APPENDIX 7: INFORMED CONSENT FORM

Project Title

Sexual Communication within Families and Influence on Sexual Behaviour and Contraception among Young People in the Brong Ahafo Region

Institutional affiliation

Department of Population, Family and Reproductive Health, School of Public Health, College of Health Sciences, University of Ghana, Legon

Background

Hello! My name is Abubakar Manu. I am a Doctoral student from the School of Public Health, University of Ghana. I am conducting a study on family sexuality communication with young people aged 10-24 years. The purpose of the study is to determine parental involvement in sexual and reproductive health communication with young people. In addition, the study will assess the relationship between parental sexuality communication and young people's sexual and contraceptive behaviours in Brong Ahafo region. Parents' attitude towards young people's sexual and contraceptive behaviours will also be determined. This is purely an academic research which forms part of my studies for the award of a PhD degree.

Procedures

You will be asked some questions about your family background; whether you (*parents*) have ever talked to your child or (*for young people*) your parents have ever talked to you about sexual and reproductive Health; and sexual behaviour and contraceptive use. Parents will also be asked about their knowledge and attitude towards young people sexual behaviour and contraceptive use. In addition, both parents and young people will be asked about their comfort level in discussing sexual health matters.

Risks and Benefits

The study does not involve any risks. However, you may feel uneasy with some of the questions we will be asking you. Your responses will be very helpful to the study. The information you provide will contribute toward efforts to reducing risky sexual behaviours like unprotected sex and multiple sexual partners among young people in the Brong Ahafo region. The findings of the study will inform the regional health directorate about what and how family norms are transmitted to young people that shape their sexual behaviour. The study will also add to existing knowledge on young people's health.

Right to refuse

Participation in this study is voluntary and you can choose not to answer any individual question or all the questions. You are at liberty to withdraw from the study any time. However, I will encourage you to participate and complete the questions since your opinions are important to help design strategy to improve young people healthy sexual behaviour.

Anonymity and Confidentiality

I would like to assure you that whatever information you will provide will be handled with strict confidentiality and will be used purely for research purposes, and will not be used against you. Your responses will not be shared with anybody who is not part of the study team. Data analysis will be done at the aggregate level to ensure anonymity.

Before taking consent

Do you have any questions you wish to ask about the study? Yes ☐ No ☐
(If yes, questions to be noted below)

If you have questions later, you may contact **Abubakar Manu 024 423 6598**

Consent

I _____, declare that the purpose, procedures as well as risks and benefits of the study have been thoroughly explained to me in English/Twi/Bono language and I have understood. I hereby [agree ☐ disagree ☐] to participate in the study.

Signature/Thumbprint of Participant/Guardian _____

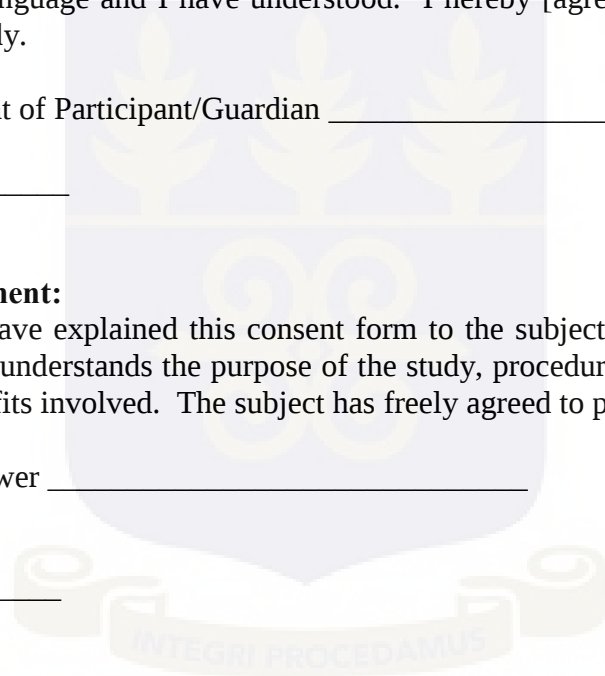
Date ____/____/____

Interviewer's statement:

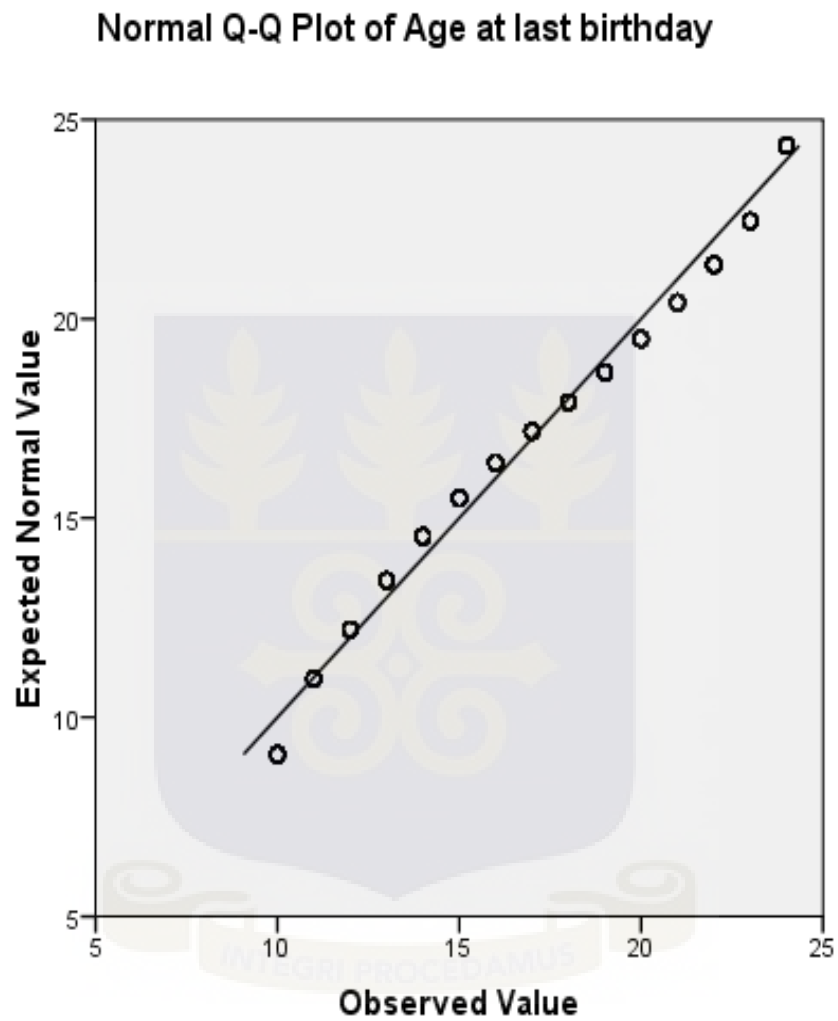
I, the undersigned, have explained this consent form to the subject in the English/Twi/Bono language that she/he understands the purpose of the study, procedures to be followed, as well as the risks and benefits involved. The subject has freely agreed to participate in the study.

Signature of Interviewer _____

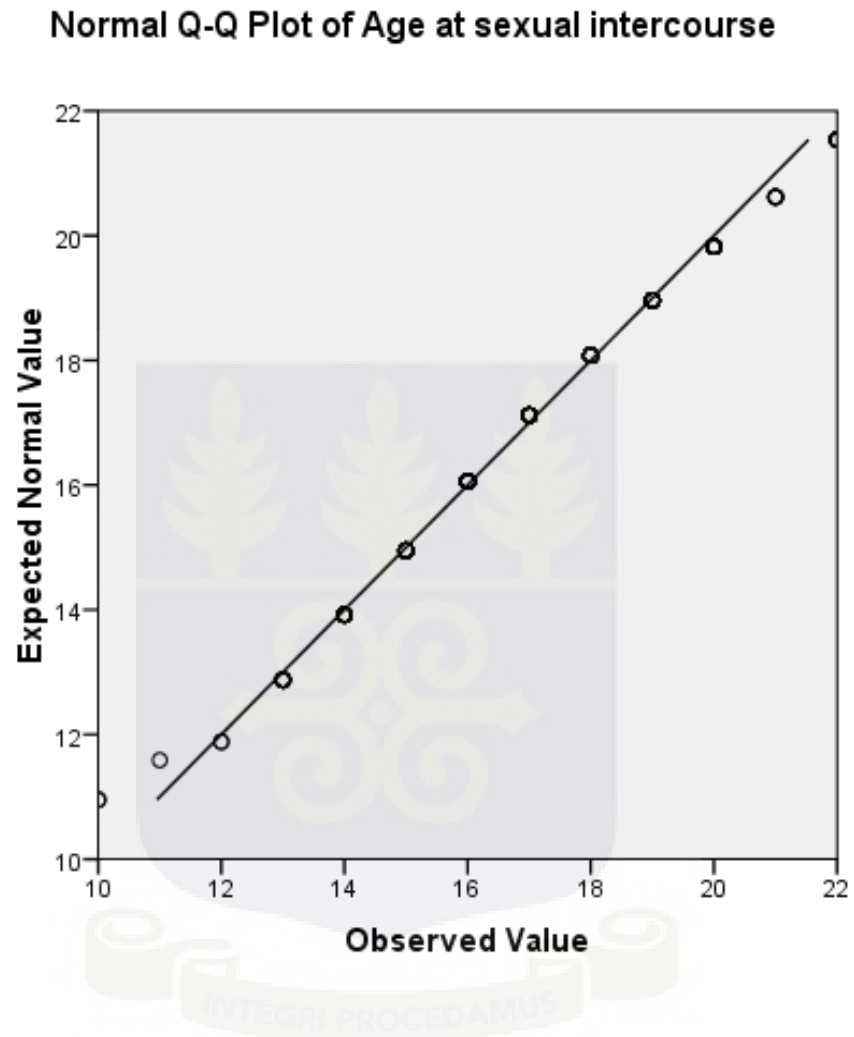
Date ____/____/____



APPENDIX 8: NORMAL Q-Q PLOT OF AGE, YOUNG PEOPLE



APPENDIX 9: NORMAL Q-Q PLOT OF AGE AT SEXUAL INTERCOURSE



APPENDIX 10: RESIDUAL SCATTER PLOTS

Chart A: Residual scatter plot before transformation

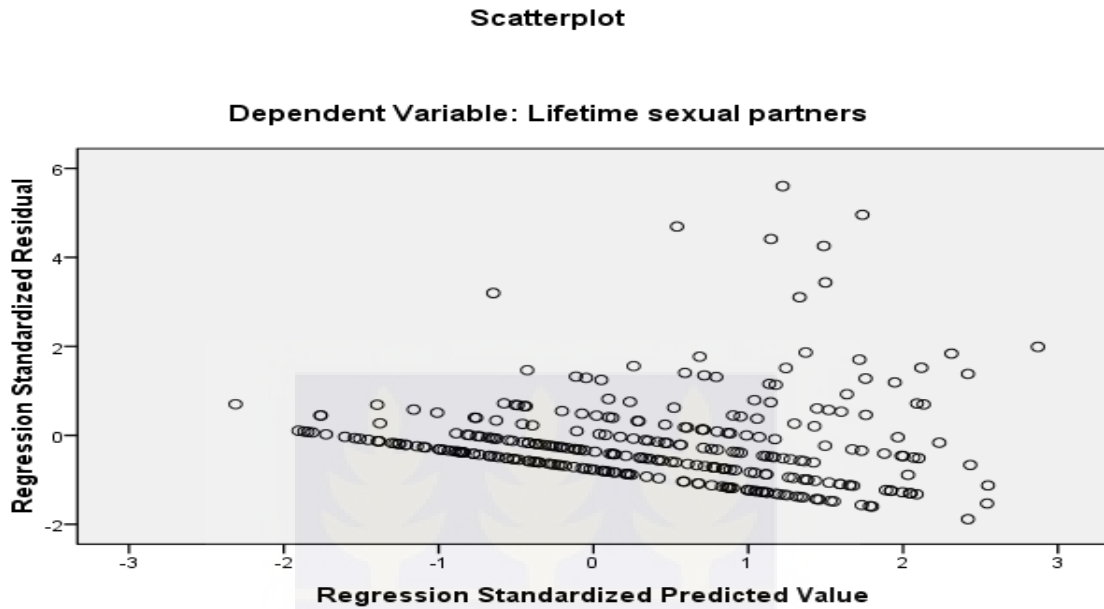


Chart B: Residual scatter plot after transformation

