

UNIVERSITY OF GHANA
COLLEGE OF HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH



IMPROVING ACCESS AND USE OF EMERGENCY CONTRACEPTION AMONG
ADOLESCENTS IN THE TOORO SUB-REGION OF UGANDA: THE EFFECT OF THE
REPRODUCTIVE HEALTH EDUCATION INTERVENTION

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THIS THESIS IS SUBMITTED TO THE SCHOOL OF PUBLIC HEALTH,
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DECLARATION

I hereby declare that this thesis is my independent research that has been conducted in the Tooro sub-region, Uganda under the supervision of Prof. Juliana Yartey-Enos, Prof. Kwasi Torpey, and Dr. Deda Ogum Alangea. I, therefore, affirm that this work, whether in part or in whole, has never been published or submitted to any institution for any academic award. All references made to other researchers' work have been duly acknowledged.



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DEDICATION

I dedicate this research to my mother, Lovinah Tindibakira, for her constant prayers, encouragement, support, and motherly love. Even in times of ill health, she would fast for my studies. To my guardian, the late Archbishop Emeritus, the Most Rev. Paul K. Bakyenga, for the warm fatherly encouragement and for helping me to keep my zeal. To Fr. Martin Andama, Sr. Vivina Tibahikaho, Sr. Angela Kinkuhair, Sr. Schola and Mum Elizabeth for nurturing me during my most vulnerable periods. To my children, the Agabaz; Michael, Mark, and Maynard. Finally, I dedicate this thesis to Mother Mary for interceding for me beyond my imagination.



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ABSTRACT

Background: Adolescent pregnancies jeopardize the health of young people and have a negative impact on their lives. The consequences of adolescent pregnancies affect not just mothers but also their offspring. Most adolescent pregnancies are unplanned and unwanted. Modern family planning methods, as well as other preventive efforts, have been shown to reduce unplanned pregnancies. Emergency contraception (EC) in particular, has been identified as an effective method for preventing unwanted conceptions. However, recent literature demonstrates that adolescents are not using ECs or other modern family planning methods to prevent unwanted pregnancies. This study sought to investigate the factors influencing access and use of ECs among out-of-school adolescents aged 14 to 17 years in the Tooro sub-region of Uganda, using a Reproductive Health Education Intervention (RHEI).

Methods: A quasi-experimental study approach was used in this study. Factors influencing access and utilization of emergency contraception among adolescents, guided by the PRECEDE-PROCEED model were investigated. The study was carried out in three phases. **Phase one** consisted of the collection of baseline data. This was designed to determine the prevalence of EC use among adolescents, and their predisposing, reinforcing, and enabling factors. Predisposing factors included adolescents' knowledge, attitudes, and perceptions of EC access and use. Reinforcing factors included the support of Village Health Teams (VHTs) and their referral of adolescents to access and utilize ECs. Enabling (health system) factors included the knowledge, attitudes, and practices of service providers, EC availability, distance to the health facility, and pricing of EC services. In the **second phase**, service providers from both private and public health facilities that provide ECs over the counter as well as members of the VHT were trained as part of a RHEI. The training was tailored to address gaps and challenges identified in the baseline

study, and improve access and use of ECs among adolescents. The **third phase** comprised post-intervention assessments at three and six months to determine the impact of the RHEI on adolescents' access to and use of ECs.

Data was collected using both qualitative and quantitative methods. The qualitative methods used included focus group discussions and key informant interviews, resulting in the in-depth descriptions and opinions of key stakeholders. This data was audio captured and processed with ATLAS-ti software, which created themes, sub-themes, and codes. The mystery clients' approach was used to collect data on the quality of care provided by service providers. STATA version 16 was used to analyse quantitative data. Bivariate and multivariable logistic regression analysis was used to determine the relationship between predictor and outcome variables. The baseline, 3-month, and 6-month post-intervention data were analysed using the mixed-effect logistic regression modelling to account for the intra personal correlation over the time period of the intervention.

Findings: Baseline data analysis indicated that the prevalence of sexual activity among adolescents in the study was 72.2%. The prevalence of modern contraceptive use was 32.9%. The prevalence of EC use among sexually active adolescents was 14.3%. A few of the adolescents in this study (14.9%) were knowledgeable about ECs. Only 21.2% expressed a positive attitude towards ECs. The knowledge, attitudes, and practices of service providers were assessed as low. The minority (26.7%) of care providers were knowledgeable about ECs provision to adolescents. Only 14.0% and 25.6% had a positive attitude and confidence to deliver ECs to adolescents respectively. The members of the village health team (VHTs), on the other hand, lacked information and were unable to counsel adolescents about ECs because they were

not knowledgeable. The VHT's attitudes towards adolescent use of ECs were unfavourable, based, not just on cultural and religious affiliation, but also on the perceived side effects of ECs. Post-intervention assessments at 3 and 6 months demonstrated a positive effect on EC access and use among adolescents. The overall use of ECs increased from 14.3% to 44.3%. In independent groups, the prevalence of adolescents' EC use increased from 13.0% at baseline to 58.4% in the intervention group at 6 months, while recording less increase from 16.0% to 26.3% in the control group at the same period. When compared to the control group, adolescents in the intervention group were 8 times more likely to use ECs (AOR = 8.07; 95% CI: 3.73–17.46; $p < 0.001$) post intervention. Furthermore, when compared to the control group, adolescents in the intervention group were 12 times more likely to be knowledgeable about ECs (AOR = 11.71; 95% CI: 6.67–20.54; $p < 0.001$) and 16 times more likely to have a positive attitude to ECs use (AOR = 16.47; 95% CI: 8.39–32.35; $p < 0.001$). The training also had an effect on service providers, thus increasing their knowledge, attitude, competence, and practice. Knowledge among service providers increased from 23.9% to 89.1%; positive attitude increased from 17.4% to 80.1%; and confidence increased from 23.9% to 97.8%. The mystery clients were able to notice an improvement in the service providers' level of quality-of-service provision when compared to the baseline assessment. Furthermore, when compared to the control groups, the members of the village health team in the intervention group were able to support and refer adolescents to facilities that provide ECs.

Conclusions and Recommendations: The prevalence of sexual activity among adolescents is high, especially in the rural areas of Tooro sub-region of Uganda. Findings from this study indicate that modern contraception, including EC utilization, is low in this population. Limitations to use included low knowledge and limited access to ECs. The Reproductive Health

Education Intervention (RHEI) improved access and use of ECs among adolescents. The Ministry of Health and other implementing agencies could employ the RHEI approach as it was effective at improving service providers' quality of EC provision to adolescents, while the VHTs were able to support and refer adolescents to health facilities for EC services. The Ministry of Health should adopt this simple but effective RHEI strategy to improve access and utilization of ECs and other modern contraceptives by adolescents.



CONTENTS

DECLARATION.....	i
DEDICATION.....	ii
ACKNOWLEDGEMENT.....	iii
ABSTRACT.....	v
LIST OF FIGURES.....	xv
LIST OF TABLES.....	xvi
LIST OF ABBREVIATIONS.....	xviii
DEFINITION OF TERMS.....	xix
CHAPTER ONE.....	1
1.0 INTRODUCTION.....	1
1.1 Background.....	1
1.2 Problem statement.....	3
1.3 Research questions.....	6
1.4 Research objectives.....	6
1.4 Justification of the study.....	6
1.5 Conceptual framework.....	9
1.6 Theories underpinning this research.....	12
CHAPTER TWO.....	13
2.0 LITERATURE REVIEW.....	13
2.1 Introduction.....	13
2.2 Situation of adolescent pregnancies.....	13
2.3 Determinants of adolescent fertility.....	18
2.3.1 Adolescent sexual initiation and sexual behavior.....	18
2.3.2 Child Marriage.....	19
2.3.3 Utilization of modern contraception.....	20
2.4 Emergency contraception.....	22
2.4.1 Types and indications for emergency contraception.....	22
2.4.2 Mode of action of emergency contraception.....	23
2.4.3 Effectiveness of ECs.....	24
2.4.4 Side effects of emergency contraception.....	25
2.5 Emergency contraceptive use among adolescents.....	26
2.5.1 Predisposing factors to EC use among adolescents.....	27

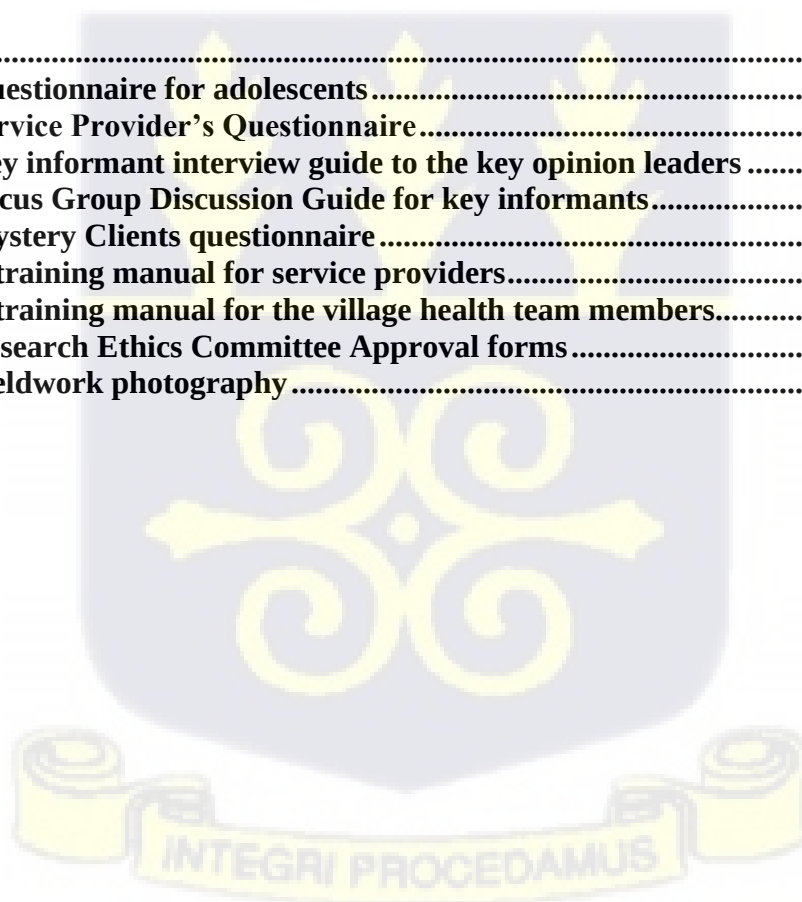
2.5.1.1 Individual factors associated with EC use among adolescents	27
2.5.1.2 Adolescents' awareness and knowledge about ECs	27
2.5.1.3 Adolescents perceived benefits and threats to EC use.	29
2.5.1.4 Socioeconomic and cultural factors associated with ECs use among adolescents.....	29
2.5.2 Enabling factors for emergency contraception use among adolescents.	30
2.5.2.1 Service providers' knowledge on EC	30
2.5.2.2 Service providers' attitudes towards EC provision to adolescents	31
2.5.3 Reinforcing factors to access and use of ECs among adolescents.	32
2.6 Interventions to prevent adolescent pregnancies	34
CHAPTER THREE	37
3.0 RESEARCH METHODS.....	37
3.1 Introduction.....	37
3.2 Study design.....	37
3.3 Philosophical basis of the study	38
3.4 Study Site and Population	39
3.4.1 Study site.....	39
3.4.2 Study Population.....	41
3.4.3 Inclusion and Exclusion criteria.....	41
3.5 Sampling	42
3.5.1 Sample size determination	42
3.5.2 Selection of intervention and control study sites.....	44
3.5.3 Sampling procedure	45
3.6 Study instruments.....	47
3.6.1 Adolescent questionnaire	47
3.6.2 Service providers questionnaire	48
3.6.3 Mystery client questionnaire.....	49
3.6.4 Key informants and focus group discussion instruments.....	49
3.7 Pre-data collection activities	50
3.7.1 Training of Research Assistants.....	50

3.7.2 Pre-testing of Study instruments	51
3.8 Study variables	52
3.8.1 Dependent variables.....	54
3.8.2 Independent variables	54
3.9 Ethical consideration	55
3.10 Data entry and management	56
3.11 Data analysis	56
3.11.1 Analysis of Quantitative data.	57
3.11.2 Analysis of qualitative data	60
CHAPTER FOUR.....	62
4.0 RESULTS	62
4.1 Introduction.....	62
4.1.1 Characteristics of the adolescent respondents	62
4.2 Prevalence of EC use and demographic factors among sexually active adolescents.....	64
4.2.1 Use of emergency contraception and demographics of sexually active adolescents.....	64
4.2.2 Emergency contraception use and frequency of sexual activity among sexually active adolescents.....	65
4.1.3 The frequency of emergency contraception use among sexually active adolescents	66
4.2.4 Knowledge about emergency contraception among adolescents	67
4.2.4.1 Bivariate analysis of adolescent demographic characteristics associated with knowledge about ECs.	67
4.2.4.2 Multivariable regression analysis of factors associated with adolescents' knowledge about ECs.	69
4.2.5 Attitude of adolescents towards use of emergency contraception.....	70
4.2.5.1 Bivariate analysis of association between adolescents' demographic characteristics and attitude towards ECs.....	70
4.3 Enabling factors associated with EC use among adolescents.....	72
4.3.1 Demographic characteristics of service providers.....	72
4.3.2 Service providers' knowledge about providing ECs to the adolescents.....	73
4.3.3 Service providers' attitude towards providing EC to adolescents.	74
4.3.4 Service providers' confidence in providing ECs to adolescents.	76
4.3.5 Service providers' practice of providing ECs to adolescents.	77

4.3.6 Adolescents' assessment of EC provision by service providers.	79
4.3.7 Other enabling factors to EC access among adolescents.	79
4.3.8 Mystery client experience of the quality of EC service provided at the health facilities	82
4.3.8.1 Attitude of service providers towards adolescent mystery client.....	82
4.3.9 Qualitative analysis of predisposing, and enabling factors	84
4.3.9.3 Report of adolescents and mystery clients experience with EC service providers	85
4.4 Reinforcing factors to access and use of ECs among adolescents.....	90
4.4.1 VHT involvement in access and use of ECs to the adolescents	90
4.4.1.1 Adolescents' perceptions about VHTs support to access and use.....	90
4.4.1.2 Qualitative analysis of VHTs involvement in EC service provision to the adolescents.....	91
4.4.1.2.1 VHTs knowledge about emergency contraception services	92
4.4.1.2.2 VHTs' Attitude to adolescents using emergency contraception	92
4.4.1.2.3 VHT support to adolescents to access and use emergency contraception	93
4.4.1.2.4 VHTs counselling to at risk adolescents.....	94
4.4.1.2.5 VHTs referral of adolescent to access ECs	94
4.4.1.2.6 Challenges in providing support to adolescents to access and use ECs.....	95
4.5 Findings from the Reproductive Health Educational Intervention (Study Phase 2).....	96
4.5.1 The effect of the RHEI on predisposing factors.....	96
4.5.1.1 The effect of the RHEI on the use of ECs among adolescents.....	96
4.5.1.2 The effect of the RHEI on the knowledge of ECs among adolescents.....	98
4.5.1.3 The effect of the RHEI on the attitude of adolescents to ECs	101
4.5.2 The effect of RHEI on enabling factors to access and use of ECs among adolescents	104
4.5.2.1 Effect of the RHEI on knowledge, attitudes, and practices of service providers	104
4.5.2.2 Qualitative analysis of the expressions and opinions about the access and use of ECs among adolescent mystery clients	106
4.5.2.1 Adolescents' understanding of EC after the intervention.....	106
4.5.2.2 Adolescents' perception of improved quality-of-service provision post-intervention	107
4.5.2.3 Mystery clients' opinions of service providers' attitude towards providing ECs to adolescents post-intervention	109

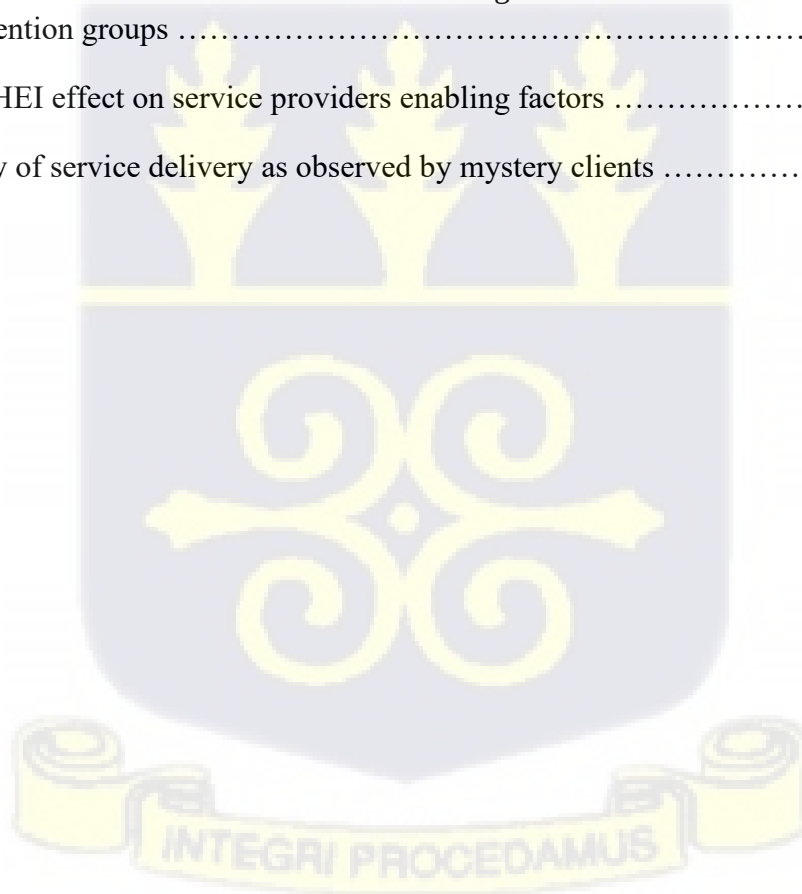
4.5.2.4 Service providers' referral of adolescents for EC services post-intervention	110
4.5.2.5 Perception about the privacy and confidentiality at the health facilities post-intervention.....	111
4.5.2.6 Availability of the medicines at the health facilities post-intervention.....	112
4.5.2.7 Perception about the cost of the ECs at the health facilities post intervention.....	113
4.5.3 The effect of RHEI on reinforcing factors to access and use of ECs among adolescents	114
4.5.3.1 VHT support to adolescents to access and use ECs.	114
4.5.3.2 Government programs that promote EC use	114
4.6. Summary of chapter four.....	115
CHAPTER FIVE	116
5.0 DISCUSSION	116
5.1 Introduction	116
5.2 Socio-demographic characteristics of participants	116
5.3 Predisposing factors to access and use of ECs among adolescents	118
5.3.1 Emergency contraception use among adolescents	118
5.3.2 Adolescents' knowledge about ECs.....	119
5.3.3 Adolescents' attitude towards ECs use	121
5.4 Enabling factors to EC access and use among adolescents	122
5.4.1 Service providers' knowledge about ECs provision to the adolescents	122
5.4.2 Service providers' attitude towards ECs provision to adolescents.....	123
5.4.3 Service providers' practice on providing ECs to adolescents	124
5.4.4 Availability, accessibility, and affordability of ECs to the adolescents	126
5.5 Reinforcing factors to access and use of ECs among adolescents.....	127
5.5.1 VHTs knowledge about EC	127
5.5.2 Village health team members' perceptions about EC access and use among adolescents	127
5.5.3 EC Policies and guidelines for the health service centres	128
5.6 The effect of the RHEI on the predisposing factors to ECs access and use among adolescents	129
5.6.1 The effect of the RHE intervention on adolescents' use of ECs	129
5.6.2 The effect of RHEI on the adolescents' knowledge.....	130
5.6.3 The effect of the RHEI on the adolescents' attitude towards ECs	131

5.6.4 The effect of the RHEI on the knowledge, attitude, confidence, and practice of service providers	132
5.6.5 The effect of RHEI on reinforcing factors towards EC access and use	134
5.7. Summary of chapter five	135
CHAPTER SIX	136
6.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	136
6.1 Introduction	136
6.2 Summary of findings	136
6.3 Conclusion	137
6.4 Contribution to knowledge	139
6.5 Recommendations	140
6.5.1 Practice	140
6.5.2 Future research	141
References	143
Appendix 1: Questionnaire for adolescents	154
Appendix 2: Service Provider’s Questionnaire	159
Appendix 3: Key informant interview guide to the key opinion leaders	163
Appendix 4: Focus Group Discussion Guide for key informants	166
Appendix 5: Mystery Clients questionnaire	168
Appendix 6: A training manual for service providers	170
Appendix 7: A training manual for the village health team members	180
Appendix 8: Research Ethics Committee Approval forms	184
Appendix 9: Fieldwork photography	186



LIST OF FIGURES

Figure 1: Conceptual Framework: PRECEDE PROCEED Model	11
Figure 2: Map of Tooro Sub-Region	40
Figure 3: Sampling procedure	45
Figure 4: Adolescent responses of the VHTs support.....	91
Figure 5: Comparison of EC use among the adolescents in the Control and Intervention groups	96
Figure 6: Comparison of knowledge about EC use among the adolescents in the control and intervention groups	98
Figure 7: Comparison of attitude towards EC use among the adolescents in the control and intervention groups	101
Figure 8: The RHEI effect on service providers enabling factors	104
Figure 9: Quality of service delivery as observed by mystery clients	106



LIST OF TABLES

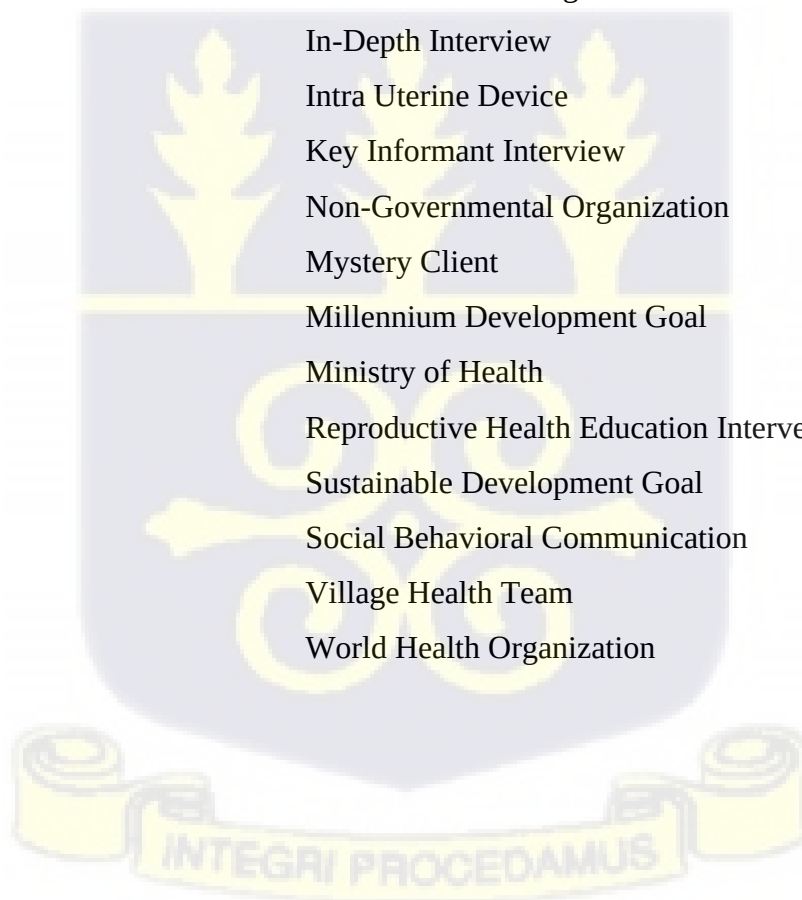
Table 1: Demographic characteristics of Bundibugyo and Kamwenge districts	44
Table 2: Health facilities in Bundibugyo and Kamwenge districts	46
Table 3: Study instruments.....	46
Table 4: Description of the variables for the study	52
Table 5: Themes, sub themes and codes	61
Table 6: Socio-demographic characteristic of the adolescents	63
Table 7: Demographic characteristics of sexually active adolescents by EC use.....	64
Table 8: Emergency contraception use among sexually active adolescents.....	65
Table 9: The frequency of taking ECs among those who used ECs	66
Table 10: Bivariate analysis of EC knowledge levels and demographic characteristics	68
Table 11: Multivariable logistic regression of predictors of knowledge of ECs among adolescents	69
Table 12: Bivariate analysis of association between adolescent demographic characteristics and attitude towards ECs.....	71
Table13: Demographic characteristics of the service providers.....	72
Table 14: Bivariate analysis of service providers' demographic characteristics and knowledge about ECs.....	73
Table 15: Bivariate analysis on the association between service providers' demographic characteristics and their attitude towards adolescents' EC provision to adolescents...75	
Table 16: Bivariate analysis of the association between service providers' demographic characteristics and confidence towards providing ECs to adolescents.....	76
Table 17: Bivariate analysis of the association between service providers' demographic characteristics and their practice of providing ECs to adolescents	78
Table 18: Reported practice of service providers by the adolescents who accessed ECs	79
Table 19: Association between adolescents' responses of the source, distance, cost and use of ECs	80
Table 20: Association between service provider's responses to the sources of information, availability and cost of EC, government support, community linkages AND practice to providing of ECs to the adolescents	81

Table 21: Attitude of service providers towards the adolescent mystery clients	83
Table 22: Demographic characteristics of key informants	84
Table 23: A mixed-effect logistic regression of the RHEI on the use of ECs among adolescents	97
Table 24: The mixed-effect logistic regression of the intervention on the knowledge on ECs and adolescents' demographics	100
Table 25: The mixed-effect logistic regression of the RHEI intervention on the attitude of adolescents to EC use	103
Table 26: Logistic regression of the effect of RHEI on service providers.....	105



LIST OF ABBREVIATIONS

ASRH	Adolescent Sexual and Reproductive Health
CPR	Contraceptive Prevalence Rate
CHEWS	Community Health Extension Workers
DHO	District Health Officer
EC	Emergency Contraception
FGD	Focus Group Discussion
FP	Family Planning
GoU	Government of Uganda
HC	Health Centre
HSSIP	Health Sector Strategic and Investment plan
IDI	In-Depth Interview
IUD	Intra Uterine Device
KII	Key Informant Interview
NGO	Non-Governmental Organization
MC	Mystery Client
MDG	Millennium Development Goal
MoH	Ministry of Health
RHEI	Reproductive Health Education Intervention
SDG	Sustainable Development Goal
SBC	Social Behavioral Communication
VHT	Village Health Team
WHO	World Health Organization



DEFINITION OF TERMS

For purposes of this research, the following definitions were used

Adolescent: Individual between 10-19 years (WHO, 2022a).

Age at sexual initiation: The age at which a young person first engaged in vaginal sexual intercourse with the opposite sex (WHO, 2020).

Attitude: A complex mental state involving beliefs and feelings and values and dispositions to act in a certain way (Altmann, 2008).

Emergency contraception: Any kind of modern contraception (preferably levonorgestrel, IUD or UPA) that can be used to prevent unintended pregnancy taken after unprotected sexual intercourse (Glasier, 2013).

Health service provider: A health professional having certification to work in a health service institution (Dawit, Van Der Merwe, & Smith, 2010).

Knowledge of ECs: The consciousness of existence, importance, and effectiveness of ECs (Williams, Jauk, Szychowski, & Arbuckle, 2021).

Practice of ECs: Competency in use, providing, prescribing, or recommending ECs to anyone (Faller, Hernandez, Hernandez, & Gabriel, 2020). While the medical dictionary refers to practice as provision of health care that incorporates the most current and valid research results ¹

Sexual activity: A state of feeling of sexual intimacy, inclination to pleasure with a sense of sexual enjoyment bringing responsiveness to stimulation resulting into sexual excitement or orgasm (WHO, 2018).

¹ <https://medical-dictionary.thefreedictionary.com/practice>

Unintended pregnancy: A pregnancy that is either unwanted such that the pregnancy occurred when no children were desired, or mistimed such that the pregnancy occurred earlier than desired (CDC, 2023).



CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Unwanted pregnancies continue to endanger the well-being and quality of life of adolescents. This threat does not only affect their health but also their social, educational, and economic development (Renzaho, Kamara, Georgeou, & Kamanga, 2017; WHO, 2020). Biological changes during adolescence heighten adolescents' yearning for close relationships and sexual activity (Darroch, Woog, Bankole, & Ashford, 2016; Renzaho et al., 2017). The risk of having unprotected sexual intercourse is further increased by early menarche, one of the indicators of early biological maturation. Additionally, unprotected intercourse puts adolescent girls in danger of early marriage (Erulkar, 2013; Ibitoye, Choi, Tai, Lee, & Sommer, 2017).

Unprotected sex is particularly worrying because it results in unintended pregnancies with serious health and socioeconomic consequences for both the mother and offspring (Amongin et al., 2020; Bearak et al., 2019; Esantsi et al., 2015; Mphatswe, Maise, & Sebitloane, 2016). Among the consequences is unsafe abortion (Morris & Rushwan, 2015). Some adolescents who are able to carry their pregnancies to term typically deliver infants that are undersized for their age (UNPF., 2015). These adolescent mothers encounter maternal problems during childbirth, which frequently result in the death of the mother or child (Esantsi et al., 2015).

Adolescent pregnancy concerns are transnational. International development agencies, governments, and NGOs have developed strategies to reduce teenage pregnancies (Charles, Rycroft-Malone, Aslam, Hendry, Pasterfield, & Whitaker, 2016; WHO, 2020). Uganda, a

signatory to the United Nations (UN) and Sustainable Development Goals (SDGs), has assigned the Ministries of Gender, Labour and Social Development, Health, and Education to carry out programmes to reduce adolescent pregnancies (UN, 2017). Programmes include behaviour change, cultural and religious approaches, school health, family planning, and formal education (Landor, Simons, Simons, Brody, & Gibbons, 2011).

Services for family planning have been shown to lower the number of unintended pregnancies directly and significantly. However, adolescents do not utilise contemporary contraceptive techniques or family planning programmes (Onasoga, 2016). For instance, the Uganda Demographic and Health Survey (UDHS) reveals that adolescents use modern contraception at a rate of 9.4%, although knowledge is at nearly 99% (UDHS, 2016). The prevalence of using the pill, Depo-Provera, Intra Uterine Device (IUD), and implant is 0.6%, 4.3%, 0.2%, and 0.9%, respectively (UDHS, 2016). The average age at first contraceptive use is 23.8 years. The use of contraception begins when users have an average of two (2) children (Were, 2020).

Thus, given Uganda's high sexual activity among 15-19 year-olds (45.7%) and low utilization of modern contraceptive methods (9.4%) (UDHS, 2016), the potential use of emergency contraception (ECs) to prevent unwanted pregnancies is justified (Babatunde et al., 2016). Emergency contraception becomes the best option because it allows an immediate solution to unplanned pregnancies as well as preparation for routine modern contraception (Islam, Khan, & Rahman, 2021). However, reports indicate that EC use among adolescents in Uganda is low at 0.00% (UDHS, 2016; Were, 2020). This study examined adolescents' access and use of emergency contraception in Uganda.

1.2 Problem statement

Uganda has a high prevalence of adolescent pregnancy. By the age of 19 years, 25 % of Ugandan adolescents have been pregnant or given birth (Byonanebye, Brazauskas, Tumwesigye, Young, May, & Cassidy, 2020; UDHS, 2016). Uganda's adolescent pregnancy rate has increased from 24% in 2011 to 25% in 2016 (UDHS, 2016). The adolescent birth rate in Uganda is 132/1000, which is higher than the global rate of 44.1 pregnancies per 1000 adolescents aged 15-19 years (Amongin et al., 2020; WHO, 2020).

This observation is particularly worrying due to the high prevalence of sexual activity among Ugandan adolescents. According to the Uganda Bureau of Statistics, nearly half (45.7%) of all adolescents are sexually active, and 10.3% had their first sexual encounter before the age of 15 years (UBOS, 2017). The median age at first sex has increased by 1 year from 15 years in 1989 to 16 years in 2016. Another interesting statistic is that 62% of women aged 20 to 44 years reported having their first sexual experience before the age of 18 (UBOS, 2016). The average age at first sex, marriage, and first birth are 16.8, 19, and 20 years, respectively (Were, 2020). Besides, 83% of the adolescents have had sexual encounters by their 20th birthday (UBOS, 2017); Were, 2020), and 17% have had sexual intercourse in the past month (Were, 2020). These adolescent sexual behaviours contribute to a high fertility rate, which is a key determinant of population growth (UNPF., 2015).

A key concern is the use of modern family planning methods among adolescents. Recent research indicates that modern contraception use among adolescents is 9.4% (Sserwanja, Musaba, & Mukunya, 2021). The 2016 demographic and health survey shows that 42.3% of adolescents in Uganda have unmet need for modern contraception, which is higher than that of women of childbearing age (28%) (UDHS, 2016).

Demand should also be taken into account when analyzing adolescent girls' use of contraception. A study by UBOS (2017) revealed that 72.1% of adolescents have the intention to use contraception, while demand among unmarried adolescents (64.6%) is much lower than the national estimate of 67% among women of childbearing age (UDHS, 2016). Most of the sexually active adolescents (82.1%) live in rural settings, where factors such as low socioeconomic status, a low level of education, and limited access to modern contraception exist (Were, 2020). These factors are often associated with unmet needs as basic indicators of utilisation (Sserwanja, Musaba, & Mukunya, 2021). The above challenges necessitate an urgent solution to curb the increasing number of adolescent pregnancies.

Studies show that ECs are effective in preventing pregnancy by up to 95% when used consistently and correctly (Glasier, 2013; Haeger, Lamme, & Cleland, 2018). However, Ugandan adolescents do not seem to be using emergency contraception. The 2016 Uganda Demographic and Health Survey indicated that the EC prevalence rate is at 0% among adolescents (UDHS, 2016). The survey further revealed that only 44.0% of adolescents know about emergency contraception. The source of information is one of the factors associated with the use of ECs. For example, only 4% and 10.6% of adolescents aged 15-19 years reported having been visited or visiting a service provider, respectively, and discussing FP in the last 12 months. Most adolescents (87.3%) never discussed FP with service providers (UDHS, 2016).

The source of ECs is another important aspect to take into consideration. Some predictors of EC service delivery include the attitude of service providers, accessibility, availability, and quality of service provision (Dawit, Van Der Merwe, & Smith, 2010). There has not been any research done in the Tooro Sub-region, Uganda, that looks at service provider factors associated with EC provision to adolescents. Nalwadda, Mirembe, Byamugisha & Faxelid (2010) found barriers to

EC service delivery, where providers had a negative attitude and low quality of service provision in private facilities. (Byamugisha, 2007), in his research about the knowledge, attitude, and practices of private service providers in Kampala, found that 25% of the providers did not know the time limit within which the ECs are effective, and had not received training on the provision of ECs to adolescents. Similar research on the provision of modern contraceptives among service providers to adolescents (Nalwadda, Namutebi, & Volgsten, 2019) identifies that service providers had misconceptions and myths about the side effects of ECs on adolescents. In addition, despite governments' recognition of the importance of village health teams (VHTs) in promoting the use of health services, there is no information on understanding the VHTs perspectives that may be related to EC use among adolescents (Nalwadda, Mirembe, Byamugisha, & Faxelid, 2010; Nalwadda, Namutebi, & Volgsten, 2019).

Despite the above observations, Uganda's population below 18 years is still young and unable to make an informed decision (WHO, 2024a). This raises societal, ethical, and legal concerns about the use of ECs by adolescents. There is limited evidence regarding the ideas and perspectives of opinion leaders regarding the provision and use of ECs among teenagers in Uganda.

Based on the aforementioned situational assessment and identified gaps, this research sought to identify factors associated with access and use of ECs among adolescents. The study also sought to develop an educational intervention that would likely increase adolescents' access to and use of ECs in Uganda. The outcome was anticipated to provide high-quality empirical evidence about the provision of contraceptive services and, more specifically, the use of ECs among adolescents. It was also expected that the attitudes, perceptions, and practices of service providers and village health team members regarding the delivery of ECs to adolescents

would improve, resulting in improved access and utilisation of ECs among adolescents in Uganda.

1.3 Research questions

1. What is the prevalence of EC use among adolescents in the Tooro Sub-region of Uganda?
2. What are predisposing (adolescents' individual) factors associated with their utilization of ECs in Tooro sub-region of Uganda?
3. What are the enabling (health system and service provider) factors associated with the provision of ECs to adolescents in Tooro Sub-region, Uganda?
4. What are the reinforcing (community-based) factors associated with the provision of ECs and their use by adolescents in Tooro Sub-region, Uganda?
5. Can a reproductive health educational intervention (RHEI) have an effect on the knowledge, attitude and practices of providers as well as utilization of ECs among adolescents?

1.4 Research objectives

1. To assess the prevalence of EC use among adolescents in the Tooro Sub-region, Uganda.
2. To investigate the predisposing (adolescents' individual) factors associated with ECs use among the adolescents in Tooro Sub-region, Uganda.
3. To assess the enabling (health system and service provider) factors associated with the provision of ECs to adolescents in Tooro Sub-region, Uganda.
4. To investigate the reinforcing (community-based) factors associated with EC use among adolescents in Tooro Sub-region, Uganda.
5. To determine the effect of a Reproductive Health Educational Intervention (RHEI) on the knowledge, attitude, and practices of providers as well as the utilization of ECs among adolescents.

1.4 Justification of the study

The proposed study attempted to unravel the factors influencing the use of ECs among adolescents and explore the effectiveness of an innovative Reproductive Health Educational

Intervention (RHEI) to improve access and utilisation of ECs among adolescents in Uganda. The country records an unacceptably high prevalence of unintended pregnancies among adolescents, especially in rural areas (Were, 2020). The nation subscribes to the use of ECs as a strategy to reduce unintended pregnancies and thus reduce fertility among adolescents (Lozano et al., 2018). However, the approach to this strategy remains unclear. There was a need to investigate factors associated with EC use among adolescents,—identify gaps, and explore the feasibility and acceptability of an innovative educational intervention for improving the delivery and uptake of ECs among adolescents in Uganda. It was justifiable to generate evidence on how an educational intervention to improve the uptake of ECs among adolescents can be implemented and delivered in Uganda.

An analysis of the potential of engaging VHTs to recruit, motivate, engage, encourage, and support EC use among adolescents to prevent unwanted pregnancies was conducted.

The innovative reproductive health “educational intervention” used two strategies: i) the service provider approach and ii) the VHT strategy. The service provider approach was adopted by the Government of Uganda (GoU) at the Family Planning Summit in London in 2017. In this approach, the Government supports private and public service providers to integrate adolescent-friendly attributes into their facilities to ensure maximum access to FP services by adolescents (UDHS, 2016); The State of Uganda Population Report, 2019). This approach encourages the training of service providers on the delivery of contraception services, which include ECs. The above approach ensured sustained EC availability, which is rights-based and emphasizes free and informed consent, respect for privacy and confidentiality, equity, equality, client-centeredness, non-discrimination, participation, and accountability (UNFPA, 2013). Data generated optimally

from this study will be included in the MoH database to contribute to the estimation of health indicators and inform national policy.

The VHT strategy has been instituted to counsel, motivate, and encourage the population to use health services. This approach gives adolescents insights and rights to take care of their lives and demand contraceptive methods to prevent unintended pregnancy (UNFPA, 2016). Therefore, the training for this intervention empowered VHTs to support adolescents to use ECs. The above recommendation was reflected in a study in Uganda which revealed that a community-based approach utilising village health teams could increase adolescents' use of ECs (Nalwadda, Namutebi, & Volgsten, 2019).

Results from this study are anticipated to be used by policymakers in the Ministry of Health and District Health Teams through public awareness creation, influencing policy recommendations, and developing effective interventions to reduce adolescent pregnancies (Durojaye, Mirugi-Mukundi, & Ngwena, 2021). The data generated is crucial in designing future interventions that are locally acceptable and have the maximum chance of being effective. The results of this study would be useful to both international and national policymakers to make informed decisions on how to roll out EC provision and use among adolescents. Finally, understanding the effectiveness of this intervention enhances the appropriate delivery and uptake of EC services and thus contributes to the reduction in unintended pregnancies and attendant maternal morbidity and mortality among adolescents in resource-constrained settings such as Uganda.

1.5 Conceptual framework

This research used the PRECEDE PROCEED model and framework to shape the research flow and outcome. The model stipulated several factors associated with the utilisation of ECs among adolescents, including predisposing, reinforcing, and enhancing aspects.

The PROCEED model helped to identify the predisposing, enabling and reinforcing factors. Predisposing factors included demographic, personal, and social-economic factors. These include age, education, religion, and residence. The level of education informs knowledge and decision-making for the acquisition of ECs (Were, 2020). Personal factors include, but are not limited to, knowledge and attitudinal factors. Knowledge about ECs is related to their use. Attitudinal factors included fears that ECs can cause infertility, uterine tumours, prolonged menstruation, and abdominal pain. The experience of utilisation also hinders or facilitates continued utilisation (Isaiah, 2017).

Reinforcing factors are those acts that create internal motivation for the adolescents to utilise ECs. The relationship with community key resource persons, such as the village health teams, is essential to sustainable utilisation and referral of adolescents to facilities that provide ECs.

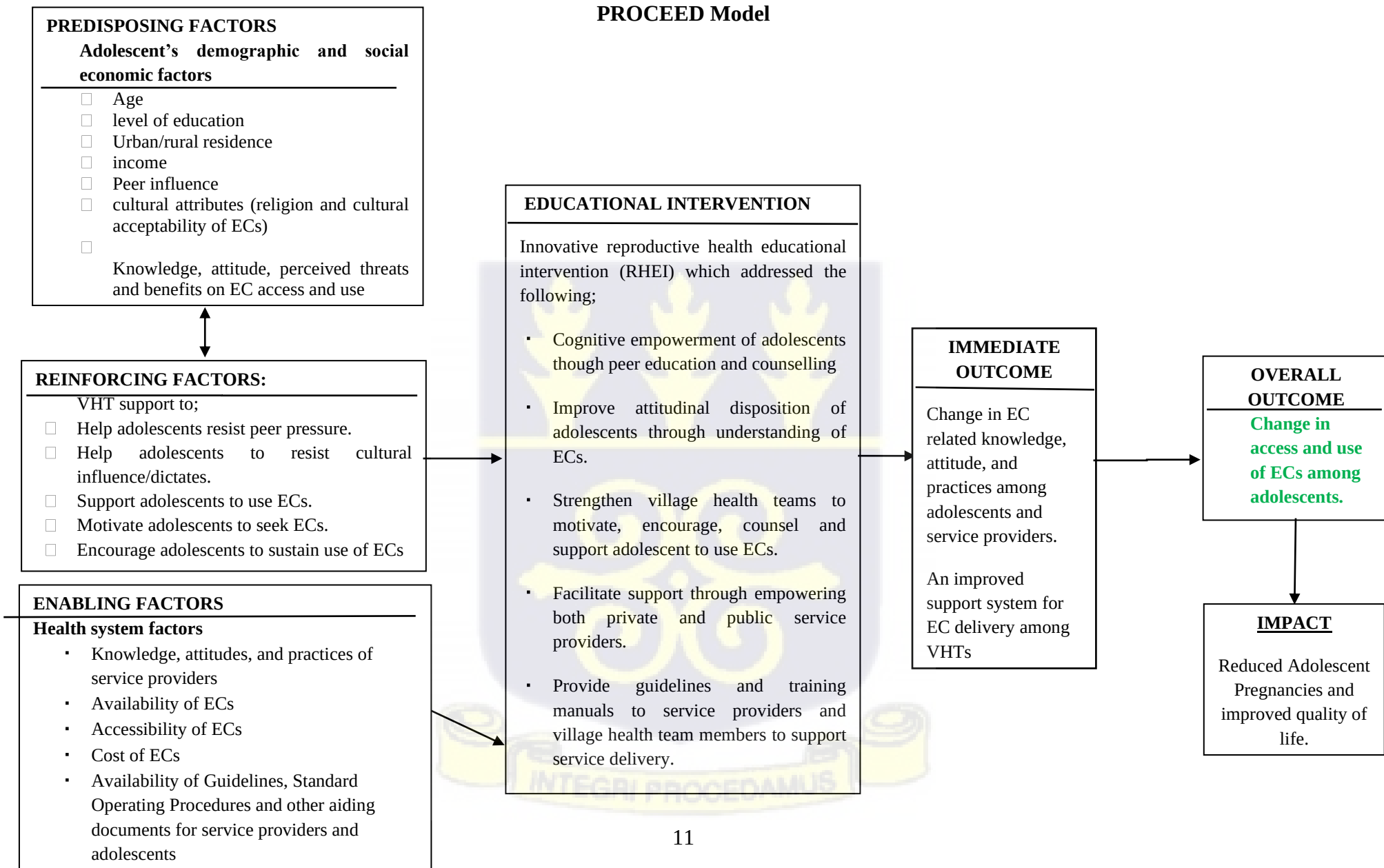
Enhancing factors are service delivery-related; they include the health workforce and infrastructure. Provider factors that may facilitate or hinder the utilisation of ECs by adolescents include knowledge of ECs. Knowledge about the indications, dose, side effects, effectiveness, and contraindications is crucial to the provision of EC services. The attitude of service providers towards providing EC to adolescents is a point of concern. Some service providers feel that adolescents are too young for EC utilisation.

In relation to the PRECEED component of the model, training service providers is one intervention that increases knowledge and changes attitudes and perceptions towards the provision of ECs to adolescents, as evidenced in the literature (Hindin, Tuncalp, Gerdt, Gipson, & Say, 2016).

The healthcare infrastructure is also important. Issues related to the accessibility of the health facility, the availability of medicines, and the capacity of the health facility to handle stocks and procurement processes are all relevant to the quality provision of ECs to adolescents. The availability of information materials facilitates service provision. Key opinion leaders' perspectives, insights, and attitudes directly affect the capacity building of service providers in the provision of ECs to adolescents and thus result in the prevention of unwanted pregnancies and improved health outcomes among adolescents.

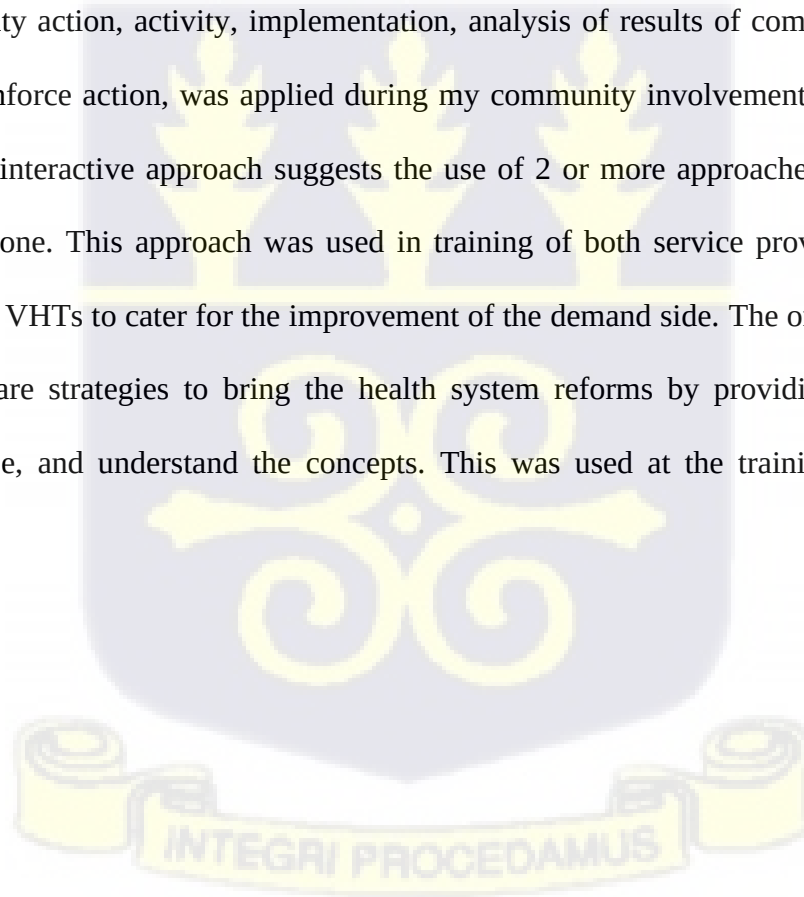
The PRECEDE PROCEED model, whose constructs have been used in the conceptual framework was proposed by Lawrence W Green in 1974. It is mostly used by policymakers and programmers to ensure successful health programmes and public health interventions. It is participatory, which creates success in the implementation of programmes through behaviour change. The model was used by Htun, Yodmai, and Taechaboonsersak (2019) in a study on emergency contraceptive use in Myanmar. Furthermore, this model was used to evaluate the effectiveness of long-acting contraception among sex workers in Kenya (Ampt et al., 2019) This model was considered applicable because of the component predisposing, reinforcing, and enabling factors that are very relevant to this analytic study.

Figure 1: A conceptual framework on factors influencing EC access and use among adolescents, using the PRECEDE



1.6 Theories underpinning this research.

Other theories and models that supported this study include the Health Belief Model, the midrange and organizational theory, the community action model, and the synergistic approach. The Health Belief Model (HBM) was adopted by Black and Hussainy (2017). The HBM employs different perception of situations. These included the benefits of; barriers to using, and efficacy of using ECs among adolescents. The model is best applied to predisposing factors to access and use of ECs among adolescents. The midrange theory was used because of integrative theories and empirical research using positivism and semantic conception of the theories. These were applied in qualitative research. The community action model which uses 5 steps including community diagnosis, identity action, activity, implementation, analysis of results of community diagnosis, maintain, and enforce action, was applied during my community involvement and engagement. The synergistic interactive approach suggests the use of 2 or more approaches to make greater effect than just one. This approach was used in training of both service providers to cater for supply side, and VHTs to cater for the improvement of the demand side. The organization theory is where there are strategies to bring the health system reforms by providing a way to see, describe, analyze, and understand the concepts. This was used at the training of the service providers.



CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter presents a thorough review of the literature on ECs, their use, and their provision to adolescents. Evidence on the determinants of adolescent pregnancy and the current situation globally and in Africa are discussed in this section. The types, indications, side effects, and effectiveness of ECs are also discussed. The determinants of EC provision and utilisation, including the knowledge, attitudes, and perceptions of adolescents, service providers, key opinion leaders, and village health teams, are also reviewed.

2.2 Situation of adolescent pregnancies

Global situation of adolescent pregnancies

Adolescent pregnancies pose a challenge globally. Globally, the population of adolescents was estimated to have reduced from about 1.8 to 1.3 billion from 2016 to 2022 which forms 16% as the largest generation in world history (UNICEF, 2022). Of the 21 million adolescent girls who get pregnant globally, about 10 million occur among those aged 15-19 years are unintended (Sedgh, Singh, & Hussain, 2014; WHO, 2020). Research further indicates that adolescent pregnancy occurs in 25% of all women worldwide (Cahyaningtyasa, Astutib, & Hanic, 2020). About 40% of all pregnancies which are unintended end up in abortion, of which 50% are among adolescents aged 15-19 years. And about 777,000 adolescents below 15 years give birth each year (Guttmacher, 2022; WHO, 2020, 2022b).

Adolescent pregnancies are generally found in both developing and developed countries. In 2015, the World Health Organization estimated the global adolescent pregnancy rate at 49/1000

(Kassa, Arowojolu, Odukogbe, & Yalew, 2018). Annually, it has also been identified that 2 million adolescents below 16 years and 16 million teens between 16-19 years become pregnant (UNPFA, 2015;(Marvin-Dowle & Soltani, 2020). Of all these unintended pregnancies among adolescents, 95% of them occur in developing countries (Kassa et al., 2018; Landry, Turner, Vyas, & Wood, 2017). The highest proportions were observed in Latin America and the Caribbean (69%), Asia (40%), and Africa (39%) (Ameyaw et al., 2019).

The global adolescent pregnancy rates have reduced over time though the prevalence is still high. In 2000, there was a global registration of 56.3 adolescent pregnancies out of every 1000 conceptions, which reduced to 42.5 adolescent pregnancies out of every 1000 conceptions in 2017 (Marvin-Dowle & Soltani, 2020; WHO, 2020). In developed countries, adolescent pregnancies have reduced from 23.4 to 12.5 per every 1000 conceptions at the same time (Marvin-Dowle & Soltani, 2020; Whitaker et al., 2016).

Adolescent Pregnancy in sub-Saharan Africa

The proportion of adolescent pregnancy in Sub-Saharan Africa (SSA) is 38%, and the prevalence ranges from 27% in West Africa to 66% in Southern Africa, respectively (Guttmacher Institute, 2018). Nearly one out of every 2 people, aged 10-24 years get pregnant in SSA (Chakraborty et al., 2019; Darroch et al., 2016; Liang et al., 2019). In Kenya, 23.3% of adolescents have been pregnant (Omoro et al., 2018). More evidence was clearly illustrated by Wado, Sully, and Mumah (2019) who carried a systematic review of adolescent pregnancy using demographic health surveys of selected countries in Africa. It was found that adolescent pregnancy in Kenya reduced from 25% in 1989 to 18% in 2014. The above study by Wado and colleagues also

identified that Tanzania's adolescent pregnancy rate reduced from 29% in 1989 to 23% in 2010 but increased to 26.7% in 2015.

It is habitual that most adolescents who become pregnant always experience repeat pregnancies. Globally, adolescent repeat pregnancy is estimated at 17% (Lozano et al., 2018). In South Africa, a repeat pregnancy rate of 17.6% was estimated in the first 24 months after delivery among adolescents (Mphatswe, Maise, & Sebitloane, 2016). Most adolescent pregnancies are unintended because most of the time adolescents are not ready to take up parental responsibilities. For example, 80% of all adolescent pregnancies are unintended (Meron Heron, 2010). The recent research identifies that 98% are unintended (Asingwire, Muhangi, Kyomuhendo, & Leight, 2019). More than three-quarters of adolescent pregnancies are unintended in Kenya and Tanzania (Hokororo, Kihunrwa, Kalluvya, Changelucha, Fitzgerald, & Downs, 2015; Omoro et al., 2018).

Adolescent pregnancy in Uganda

Uganda is one of the developing countries that have a high prevalence of adolescent pregnancy and its related complications. The evidence indicates that almost half (45.7%) of all adolescents are sexually active (Hussain, 2013). About 45% of all sexually active adolescents have at least a child, while 85% experience a repeat pregnancy (Were, 2020). Evidence from the Uganda Demographic Health Surveys (UDHS) reveals reported repeat pregnancies among adolescents of 58.9%, 66.8% and 55.6% in 1988/89, 2006, and 2016 respectively (Amongin et al., 2020; UDHS, 2016). The study also found out that 37% and 74% of adolescents repeat pregnancies occur within 12 and 24 months, respectively.

The Uganda Bureau of Statistics (UBOS) clarifies one contributing factor to adolescent pregnancy; that nearly half (49%) of the women 20-49 years were married before 18 years while 15% were married before age 15 years. Among the age group of 15-19 years, 2.8% of them have been married before attaining 15 years (MoH, 2018; UBOS, 2017). The median age at first marriage in Uganda increased from 15.6 years in 1989 to 16.3 years in 2016 (UDHS, 2016; Wado, Sully, & Mumah, 2019). The nation has registered a high incidence of repeat pregnancies among adolescents.

The above critical points reflect a challenge in Uganda. Higher adolescent pregnancy rates have contributed to the high population growth. Uganda is ranked fifth with the fastest-growing population in Africa (State of Population Report, 2018; UBOS, 2017). The nation's growth rate is at 3.2% per year and the fertility rate is currently at 5.4 children per woman of reproductive age, with an age-specific fertility rate of 132 births per 1,000 women aged 15-19 years (The State of Uganda Population Report, 2019). This proportion is the highest in East Africa and among the highest in African countries. Currently, the country has a total area of 241,550km², with a population density of 213.1 people per km² (UBOS, 2017). More than half (55%) of the population in Uganda is below 18 years, which signals a large pool of women entering the reproductive age (UDHS, 2016). Moreover, half of the population in Uganda is under 18 years (UDHS, 2016)(UBOS, 2012, 2017). These statistics are likely to increase exponentially in this 21st century since the generation of adolescents tends to be sexually active and to have multiple sex partners (Nkata, Teixeira, & Barros, 2019).

Consequences of adolescent pregnancies

There are several outcomes of unwanted and unplanned adolescent pregnancies. Unwanted pregnancies will undergo unsafe abortions while others result in complications during childbirth.

Abortion is the most common outcome of unintended pregnancies among adolescents. Globally, unsafe abortions are prevalent in both developed and developing countries. Taking the example of China, one of the fastest developing countries, which has registered increased unintended pregnancies leading to high abortion rates especially among adolescents (Wang et al., 2019).

In developing countries, however, unsafe abortion is the most prevalent outcome of unwanted pregnancies. About half of the unintended pregnancies among adolescents in Sub-Saharan Africa end up in abortion, out of which 80% are unsafe (Guttmacher Institute, 2018). Recent studies reveal that a third of adolescent pregnancies are unintended and 20% will be aborted by induction (Ameyaw et al., 2019). In Kenya, a fifth of the pregnancies undergoes induced abortion, out of which, 11% are unsafe (Isaiah, 2017). The proportion of unsafe abortion in the Democratic Republic of Congo is 5.5 percent (Ishoso, Tshefu, Delvaux, & Coppieters, 2019). In Ghana, 6 out of every 10 unsafe abortions occur among adolescents (Boah, Bordotsiah, & Kuurdong, 2019).

As far as adolescent births are concerned, current evidence identifies that among 140 million births per year worldwide, adolescent girls give births to 16 million infants and 95% of these adolescent births occur in developing countries (Govender, Naidoo, & Taylor, 2020; Marvin-Dowle & Soltani, 2020). According to WHO (2020), Africa has had the highest adolescent birth rate (ABR); for example, about 34 countries have ABR of over 80 births per 1000 adolescents aged 15-19 years in the 2015-2020 period (Noori, Proctor, Efevbera, & Oron, 2022). A quarter (25%) of women give birth before age 18 years in East and Southern Africa, while the adolescent birthrate in South Africa is 71/1000. The lowest rates have been observed in Europe and North America (WHO, 2020). In the recent WHO publication, African region has ABR at 97/1000 as compared to European region at 13.1 per 1000 women in 2023 (WHO, 2024a)

Complications during childbirth are so prevalent among adolescents. Those below age 15 years are five times, and 15-19 years are twice as likely to die due to childbirth compared to other childbearing women (Saleh, 2022). Complications of adolescent pregnancy are not only limited to the mother but also the child. Pregnant adolescents are likely to produce premature babies, low birth weight, or even small-for-gestational age babies, which fail to thrive. This is a predisposing factor to intrauterine, intrapartum, neonatal, post-neonatal, and infant mortality. All the above complications can lead to maternal mortality, which is higher among 10-24 year-olds than any other age group (Lange, Gherissi, Chou, Say, & Filippi, 2019; Okafor, Adam, & Azuike, 2018).

2.3 Determinants of adolescent fertility

2.3.1 Adolescent sexual initiation and sexual behavior

The adolescents go through transitional changes, some of which are biological, including sexual initiation; though these can come at different times. Taking the thread of the selected countries of Africa described above, the median age at first sexual encounter in Kenya, Tanzania, and Zambia remained constant at 15.0 years to 15.4 years in 1989/1991 and 2014 (Monari, Orwa, & Agwanda, 2022; TDHS, 2015)(Wado et al., 2019).

A key contributing factor to the age at sexual debut is the girl's menarche. Menarche, the onset of menstruation, is an important predictor of early sexual debut because it marks the beginning of the girls' reproductive life, which is a vital milestone for sexual and reproductive health (Ibitoye et al., 2017). Girls whose menarche occurs between 10 and 11 years are more likely to engage in sexual activities and thus experience adolescent pregnancy than girls who initiate menarche at a later age (Glynn, Kayuni, Gondwe, Price, & Crampin, 2014). In Nigeria, girls who reach menarche below 13 years are more likely to be sexually active than those who reach their

menarche at 14 years and above. Specifically, 55% of those who had their menarche at less than 14 years reported having sex before 16 years, compared with 27% of the girls who had their menarche at 14-15 years and only 4% of those whose menarche was at 16 years (Ajah et al., 2015; Ibitoye et al., 2017). Such sexual behaviors need to be identified in this study, as a basis to enforce the use of ECs.

Sexual initiation is likely to accelerate sexual behaviors such as sexual activeness and eventually increase adolescent pregnancies. Adolescents in Africa are sexually active (UNPF., 2015). For example, in Eastern Africa, 37.3% and 50% of adolescents in Kenya and Tanzania, respectively are sexually active (Hokororo et al., 2015; Omoro et al., 2018). The proportion of sexually active adolescents in Tanzania increased from 51.4% in 1991 to 52.2% in 2015 (TDHS, 2015). The study by Wado et al., (2019) in the systematic review of selected African demographic and health surveys, found that the proportion of sexually active adolescents reduced from 46.1% to 37.3% in Kenya and 61.0% to 49.1% in Zambia from 1989/1992 to 2014.

2.3.2 Child Marriage

Child marriage is another factor that influences sexual behaviors and leads to increased adolescent pregnancies. The evidence indicates that adolescent pregnancies are closely associated with early marriage (Irani & Latifnejad Roudsari, 2019; WHO, 2022a). In particular, child marriage is prevalent in Sub-Saharan Africa, accounting for 50% of all global adolescent marriages (Petroni, Steinhaus, Fenn, Stoebenau, & Gregowski, 2017). A study in Malawi found that the median age of marriage among the girls who had menarche at less than 14 years was 16.9 years. This was compared to the median age of marriage of 18.5 years for the girls who had their menarche at above 14 years (Ibitoye et al., 2017).

The prevalence rates of child marriage in Nigeria and Sierra Leone are 49% and 48% respectively (NDHS, 2019; Savage-Oyekunle & Nienaber, 2017; SDHS, 2013). In Kenya, 18% of the 15-19-year-old are married with their first child (Chin-Quee, L'engle, Otterness, Mercer, & Chen, 2014). Findings by Wado et al., (2019) the median age at first marriage in Kenya, Tanzania, Malawi, and Zambia remained constant at 16.1 years between 1989 and 2015. The culture expects them to give birth so that they are accepted in a society which makes pregnancies inevitable among married adolescents.

The above determinants of adolescent pregnancies are not only limited to sexual behaviours and child marriage, but other contributing factors include sexual abuse, family dysfunction, lack of information about sexual health, peer pressure, and substance. There is therefore a the need to engage adolescents in the utilization of modern contraception, particularly emergency contraceptive methods to eliminate unintended pregnancies.

2.3.3 Utilization of modern contraception

The use of modern family planning interventions/methods is very crucial to the reduction of adolescent pregnancies. Globally, only 38% of adolescents use modern contraception (Guttmacher Institute, 2018). In Sub-Saharan Africa, the utilization of modern contraception is very poor (Chang et al., 2019; WHO, 2022b). Taking an example of individual countries, the adolescent modern contraceptive rate is 9.3% and 8.6% for Kenya and Tanzania, respectively (KDHS, 2014; TDHS, 2015). The situation is not different concerning modern contraception in Rwanda which is 2.% (RDHS, 2015). Findings by Wado et al., (2019) indicate that the current use of contraception in Uganda increased from 2% to 10.1% between 1989 and 2016, while Tanzanian adolescent CPR increased from 6.4% to 19.6% between 1991 and 2015. Modern contraception rates among adolescents are 12.2% and 19% for Nigeria and Ghana respectively

(GDHS, 2014; NDHS, 2019), while contraceptive prevalence among adolescents in Somalia is 1% (Ahmed et al., 2019). CPR among adolescents in Malawi increased from 11.0% to 19.1% from 1992 to 2015, and in Zambia, the CPR increased from 2.8% to 10.6% from 1992 to 2014 (Whitaker et al., 2016).

Unmet need for contraception

Most women including adolescents would want to avoid pregnancy but are not using any form of contraception (Darroch et al., 2016). Twenty (20) million adolescents have unmet need for contraception globally (Casey et al., 2020). If services were improved, 4.6 million adolescents would be using modern contraception (Janssen, Holt, Sugg, Emanuel, Critchlow, & Henderson, 2003). There is a massive global unmet need for contraception among adolescents; up to 23 million adolescents need these services but cannot access them (Darroch et al., 2016) (Guttmacher Institute & BMGF, 2017). These studies further indicate that 87% of the unmet need is observed among middle-aged adolescents, 15-17 years. The unmet need for modern contraception in developing countries is at 23% among adolescents (Guttmacher Institute, 2018). The unmet need for contraception among adolescents in Somalia is 26% (Ahmed et al., 2019). The unmet need for modern contraception among adolescents in Kenya and Tanzania is 23%, while Rwanda recorded 3.6% (KDHS, 2014; RDHS, 2015; TDHS, 2015). About 12.2% of the adolescents in Nigeria have an unmet need for contraception (NDHS, 2019). The vast majority (96.3%) have an unmet need to delay birth spacing (Were, 2020). Therefore, the unmet need for contraception calls for an immediate solution as most adolescents would wish to delay pregnancy. The most urgent option is emergency contraception as adolescents prepare to adopt other modern contraceptive methods to prevent unwanted pregnancies.

2.4 Emergency contraception

2.4.1 Types and indications for emergency contraception

Emergency contraception (ECs), also called post-coital contraception, is a form of birth control that may be used by women who have had unprotected sex (Glasier, 2013; Rylander, Øyvind Odland, & Manning Sandanger, 2013). ECs can be used in times of emergencies; for example, rape, break or slip of a condom, or missing a birth control pill during a monthly cycle. It can also be used when there is a failure of the contraceptive methods, especially the natural means (Mittal, 2014). The methods include oral contraceptive pill (available in combined estrogen-progestin or progestin-only pill), vaginal ring, and transdermal patch (Wilkinson et al., 2018). Pills containing a hormone called levonorgestrel (LNG) may be marketed in different forms. These include my Way, Plan B One-Step, Preveneza, and Take Action (Glasier, 2013; Glasier et al., 2010). Other names include Lofemenal, Microgynon, and Pilplan, the progestin-only pills (POPs) (Wilkinson et al., 2018). ECs have both hormonal and non-hormonal components to prevent pregnancy within 72 hours after unprotected sex (Shen, Che, Showell, Chen, & Cheng, 2017).

LNG pills are the most frequently supplied (Collins, Schneider, & Moles, 2018). Levonorgestrel 1.5 mg (2 pills) is taken in one dose with one pill or can be taken in 2 doses of 1 tablet (0.75 mg) at a period of 12 hours apart. Ulipristal acetate (UPA), a 30mg tablet, also called Ella or ellaOne, a single dose, requires a prescription to obtain (Black & Hussainy, 2017; Haeger et al., 2018; Shen et al., 2019). There is also Mifepristone which is as effective as UPA-ECs is classified as an over-the-counter medication (OTC) (Haeger et al., 2018).

Copper T 380A intrauterine contraceptive device (IUD-EC) is another type of emergency contraception, sold as ParaGard. IUD-EC has smaller sizes marked 2, available for adolescents

who have not yet given birth and 1 for women who have given birth (Apter, 2019; Haeger, Lamme, & Cleland, 2018).

Globally, the FDA around the globe, backed -up by the World Health Organisation approved ECs to be over-the-counter (OTC) drugs without age restriction on 20 June 2013 (Atkins, Kennedy, Yeh, & Narasimhan, 2022; WHO, 2024b). As an emergency drug, the FDA has placed ECs under the priority list of essential medicines (Dawson, Tran, Westley, Mangiaterra, & Festin, 2015; Nkata, Teixeira, & Barros, 2019; WHO, 2017, 2021). This means that ECs can be obtained on a both retail and wholesale basis from private, public service providers as well as from adolescent corners (Atkins et al., 2022; Nara, Banura, & Foster, 2020)

2.4.2 Mode of action of emergency contraception

Emergency contraception's mechanism of action works by delaying ovulation. The method prevents pregnancy by temporarily blocking eggs from being released, stopping fertilization, or keeping a fertilized egg from becoming implanted in the uterus (Ehrle & Sarker, 2011; Gemzell-Danielsson & Marions, 2004). The effectiveness of LNG depends on how soon the pill is taken. It should be taken as soon as possible within 72 hours of unprotected intercourse (Gemzell-Danielsson & Marions, 2004; Rylander, Øyvind Odland, & Manning Sandanger, 2013).

The copper T 380A intrauterine contraceptive device (IUD) works by stopping the implantation of a fertilized egg in the uterus. It must be placed within 5 days of post-coitus because it contains copper which reduces sperm mobility, thus creates a hostile environment for the sperm. Copper also alters the uterine environment and increases prostaglandin, enzymes, and white blood cells (Apter, 2019; Envall, Groes Kofoed, & Kopp-Kallner, 2016; Haeger, Lamme, & Cleland, 2018).

ECs have been recommended for adolescents (Black & Hussainy, 2017; Goldstuck & Cheung, 2019). This gives a clear indication that ECs can be widely used among adolescents irrespective of age, level of education, ethnicity, and area of residence.

2.4.3 Effectiveness of ECs

The perceived safety, effectiveness, and quality of the medicine determine its use. It has been observed that generally, ECs are effective up to 95%. The failure rates of UPA and LNG are 1.2% and 1.2% - 2.1%, respectively (Glasier, 2013; Haeger et al., 2018). LNG's effectiveness depends on how soon you take the pill. It should be taken as soon as possible within 72 hours of unprotected intercourse (Gemzell-Danielsson & Marions, 2004; Rylander et al., 2013). When LNG is taken as directed, it can reduce the chance of pregnancy by close to 90% (Envall et al., 2016; Klein, Arnold, & Reese, 2015). LNG taken up to 72 hours after sexual intercourse would prevent pregnancies up to 95% within 24hr, 85% within 25-48hrs, and 58% within 49-72hrs (Haeger, Lamme, & Cleland, 2018; Klein, Arnold, & Reese, 2015). LNG is more effective than Yuzpe (estradiol-levonorgestrel). The chance of pregnancy is 25/1000, while LNG has 11-24/1000 women (Glasier, 2013).

Further evidence shows that UPA is two times likely to protect pregnancy compared to LNG because LNG can be taken within 72 hours whereas UPA can be taken up to 120 hours after sex (Glasier, 2013; Trussell, Raymond, & Cleland, 2014). Mifepristone is as effective as UPA (Black & Hussainy, 2017; Haeger et al., 2018; Shen et al., 2019). With a low dose of mifepristone, the pregnancy rate is 10-20 /1000 while with a high dose, the pregnancy rate is 16-29/100. The pregnancy rate with LGN is 35/1000 (Glasier, 1997). The intrauterine device is 95%-99% effective (Glasier, 2013). IUDs is the most cost-effective because it is purchased once for 1 year (Bellows, Tak, Sanders, Turok, & Schwarz, 2018; Trussell, Raymond, & Cleland, 2014). ECs

have been identified among one of the 13 live-saving essential and priority medicines by the UN commission (Dawson et al., 2015).

2.4.4 Side effects of emergency contraception

There are a few side effects related to ECs, such as delay in menstruation, nausea, vomiting, headache, dizziness, fatigue, breast tenderness, diarrhea and spotting or bleeding and abdominal pain (Haeger, Lamme, & Cleland, 2018; Shen et al., 2017). There is a need to do a physical and medical examination among high-risk women with conditions such as heart failure, hypertension, diabetes, and thrombotic patients. Patients with cystic fibrosis, multiple sclerosis, psychotic drug use, breastfeeding, dyslipidemias, migraines, gestational trophoblastic disease and HIV may use ECs after consultation with medical personnel (Long, Faubion, MacLaughlin, Pruthi, & Casey, 2015).

UPA intake can cause histological non-physiological endometrial changes which can result in endometrial malignancies (De Milliano, Van Hattum, Ket, Huirne, & Hehenkamp, 2017). The drug also interacts with hepatic enzyme-inducing medication (Haeger et al., 2018). For these reasons, UPA is always given under prescription. On the other hand, LNG is well-tolerated, but efficacy reduces with increased weight above 75kgs or BMI 26kg/m². However, reports have demonstrated that obesity reduces the efficacy of ECs, with a 1.2% risk of pregnancy (Haeger, Lamme, & Cleland, 2018). For women above 40 years with chronic conditions, medical assistance must be sought (Long et al., 2015).

One of the rare side effects of IUD is an ectopic pregnancy, but it is also contraindicated in untreated conditions of the genital tract, cervix, uterus and the fallopian tubes, pelvic inflammatory disease (PID), and cancers (Shen et al., 2019; Haeger et al., 2018). The above ECs

are well-tolerated among adolescents. Apart from IUD, which can eventually be maintained as a regular method, the rest of the ECs should not replace regular methods of contraception.

2.5 Emergency contraceptive use among adolescents

The utilization of long term emergency contraception has a higher chance of giving the consumers time for the next plan of action than other ECs, and since they are taken without age restriction, adolescents would very much benefit from them while preparing to utilize other forms of contraception (Envall et al., 2016; Whitaker et al., 2016).

EC method is one of the poorest utilized contraceptive methods in Africa. A multi-country survey found the utilization of ECs ranging from 0.1% to 12% (Palermo, Bleck, & Westley, 2014). Kenya and Tanzania have a similar prevalence of emergency contraception prevalence rates (ECPR) at 0.1% (KDHS, 2014; TDHS, 2015).

In West Africa, the adolescent Emergency Contraceptive Prevalence Rate (ECPR) is not different from those of East Africa. In Nigeria and Ghana, ECPR is 0.1% and 0.2%, respectively (GDHS, 2014; NDHS, 2019). Apart from the Demographic and Health Surveys, some individual research carried out in Nigeria found a low utilization of emergency contraception at 17% (Chin-Quee et al., 2014). A cross-sectional study carried out in Nigeria identified that out of 12.8% who had ever used ECs, 85.7% utilized it after 72 hours of having unprotected sex (Babatunde et al., 2016; Onasoga, Afolayan, Asamabiriowei, Jibril, & Imam, 2016).

Several factors have been identified to influence the utilization of ECs among adolescents. These include individual / predisposing factors, enabling contextual factors and reinforcing factors which are community based.

2.5.1 Predisposing factors to EC use among adolescents

The predisposing factors associated with EC use include individual demographic characteristics, and knowledge, attitudes, and perceptions of adolescents and service providers of ECs. The perceptions include the need for ECs, and the benefits, threats, and effectiveness of ECs.

2.5.1.1 Individual factors associated with EC use among adolescents

Individual factors associated with EC use include age, level of education, religion, marital status, and urban-rural residence. Older adolescents are likely to use contraception than younger ones (J. Smith, 2020). Rural-urban residence and sexual activity are modified by the education level, social-economic status, and access (Envall, Groes Kofoed, & Kopp-Kallner, 2016). Wight, Plummer, and Ross (2012) did not find an association between Religion, ethnicity and EC use. Lower levels of education are associated with early sexual initiation (Furlanetto, Ghedin, Gonçalves, & Marin, 2020). More than half of sexually active unmarried teenagers (50.6%) are from poor families (UNPFA, 2015). Similar studies have identified that low social-economic status, as well as the cultural environment of adolescents, are key predictors of contraceptive use (Ahinkorah, 2020).

2.5.1.2 Adolescents' awareness and knowledge about ECs

Awareness of service is always associated with use; therefore, information is a very important resource., adolescents who are aware of the indications of ECs including their effectiveness always have a positive attitude towards taking the EC pill (Both, 2015). In Canada, the vast majority of adolescents are aware of ECs; however, there are concerns about how many times it is supposed to be used in a month (Chaumont & Foster, 2017). The majority (85.5%) of university students in Turkey are also aware of emergency contraception (Asut et al., 2018).

There is limited awareness about ECs in Sub-Saharan Africa. In these developing countries, there is a lack of knowledge (FANTA Project. 2018). A multi-country survey found that the

knowledge about ECs ranged from 2% to 66% (Palermo, Bleck, & Westley, 2014). In Nigeria, 27.8% of the adolescents were aware of emergency contraception (Babatunde et al., 2016; Onasoga, 2016). In Kenya, 27% of adolescents were unaware of the existence of ECs (Isaiah, 2017; Keesbury, Morgan, & Owino, 2011). Congolese refugee adolescents living in Uganda did not have enough knowledge on emergency contraception (Nara, Banura, & Foster, 2020).

Access to information is one of the determinants of awareness. Although expanded access to information has a significant impact on EC utilization, misinformation on the effectiveness of the ECs deters the users (Palermo, Bleck, & Westley, 2014). Most of the users have heard about the ECs but the credibility of the source of information is a contributor to usage (Ehrle & Sarker, 2011; Garrett Wagner, Widman, Nesi, & Noar, 2018). There is diverse information on the mobile phone application concept, some adolescents are confused about what is right or wrong (Nuwamanya, Nuwasiima, Babigumira, Asiimwe, Lubinga, & Babigumira, 2018). There is also a foreseen challenge about giving leaflet information to adolescents. These leaflets end up in the bin because sex is seen as a cultural taboo and adolescents sometimes feel embarrassed when found with such leaflets (Whitaker et al., 2016).

Other important determinants of awareness are the level of education and urban living. Most of the adolescents who have ever used ECs live in urban areas and have attained post-secondary education (Onasoga, 2016). Evidence has shown that such a group of adolescents who live in urban settings and are educated, tend to carry the pills in their bags (Both, 2015; Heller, Perreira, Shartzter, Johnston, & Courtot, 2019). It is therefore important to conclude that adolescents still have challenges with awareness about ECs and the source of information is an important point of concern (Fink, Dean, Nucci-Sack, Arden, & Lunde, 2019). On the other hand, knowledge is not the only predictor of utilization.

2.5.1.3 Adolescents perceived benefits and threats to EC use.

Adolescents' use of ECs is influenced by perceived benefits have perceived benefits about ECs. Adolescents who believe that ECs are very safe, are more likely to use them (Heller et al., 2019). Benefits are adapted when adolescents use the method. Evidence shows that the repeated use among most first users reduced fears of the side effects as expressed by adolescents (Rokicki & Merten, 2018). However, almost half had misconceptions that the pill was not safe (Cameron, Li, & Gemzell-Danielsson, 2017). Furthermore, some adolescents have been stigmatized because service providers discouraged them from repeated use. The service providers advise them not to take it as regular contraception (Pooke, 2019). To make matters worse, some adolescents are worried about repeated use because some service providers will make conclusions about their multiple sexual encounters (Lee, Ahonen, Apling, & Bork, 2012).

2.5.1.4 Socioeconomic and cultural factors associated with ECs use among adolescents

Some social-economic factors associated with EC use include peer influence, parental attitude, and cultural attributes. Some adolescents who would like to use ECs report that the pill is preferred because it is given without seeking parental consent, and it is given in privacy (Lee et al., 2012; Onasoga, 2016). Young people including adolescents prefer access to ECs when they go over the counter, without prescription. Evidence reveals that there is a tendency of adolescents being judged making consultations for ECs because the providers think that they are prostitutes (Klein, Arnold, & Reese, 2015).

Another determinant that influences demand is the cost of EC. Utilization is said to be closely linked with the level of income (Saini, Kamra, & Singh, 2018). In this regard, adolescents fear that medicine is not given for free in pharmacies, thus reducing utilization (Haeger, Lamme, & Cleland, 2018; Steiner, Raymond, Attafuah, & Hays, 2000). The adolescents also identified that

IUDs are the most cost-effective because they are purchased once a year (Bellows et al., 2018). Barriers to use included side effects, and insufficient info, and opposition from the society (Chandra-Mouli & Akwara, 2020).

2.5.2 Enabling factors for emergency contraception use among adolescents.

Enabling factors that support the use of ECs among adolescents includes service delivery factors such as the service providers' knowledge, attitudes, and practices. Others including cost, accessibility, and availability of ECs are also discussed under this sub-topic (Onasoga, 2016; Massa, Meneses, Machado, & Alves, 2017).

2.5.2.1 Service providers' knowledge on EC

The provision of ECs to adolescents by the service providers is highly dependent on their knowledge. Concerning the service providers' knowledge, most of the providers are aware of the ECs and have heard about most of the types of ECs including the pill and IUD-EC (Hernandez, Muanda, Garcia, & Matawa, 2017). However, it is important to note that though service providers have some knowledge about ECs, they overestimate the contraindications (Ehrle & Sarker, 2011).

Almost all of the service providers (95%) know EC-LNG. Besides, some service providers say that it is cumbersome to differentiate between emergency contraception and other modern methods (Collins, Schneider, & Moles, 2018; Ehrle & Sarker, 2011). Evidence from Kampala reveals that public service providers in Uganda found that 80% had knowledge but 25% were not sure of the time limit within which EC is effective (Nalwadda, Namutebi, & Volgsten, 2019). Some private personnel in pharmacies and drug shops know about ECs, their modes of actions, and the frequency (Ehrle & Sarker, 2011)

In Pakistan, for example, 71% of the health providers were familiar with EC, but the research does not specify knowledge of EC use among the adolescents (Abdulghani, Karim, & Irfan, 2009). A study by Ebuehi, Ebuehi, and Inem (2006) from Nigeria revealed that most of the service providers have heard about ECs; however, half knew the correct use, and <30% knew the legality of ECs. Furthermore, a qualitative study carried out in Kumasi, Ghana found that the information obtained by the service providers was got from the training schools (Creanga, Schwandt, Danso, & Tsui, 2011).

Abdulghani and colleagues in Pakistan found that 31% of service providers thought that ECs promote promiscuity; 27% could not provide ECs to the adolescents for religious/ethical reasons; 38% thought that ECs can cause menstrual irregularity; while 33% of providers were not sure of the ECs as abortion drug (Abdulghani, Karim, & Irfan, 2009).

2.5.2.2 Service providers' attitudes towards EC provision to adolescents

Great philosophers like Winston Churchill quotes; *“attitude is one little thing that makes a big difference”* and Irving Berlin said; *“...attitude is a secret power working twenty-four hours a day...it is of paramount importance that we know how to harness and control this great force”*

The attitude among service providers is very vital in providing ECs to adolescents. Diverse researchers have found out several responses from service providers as far as access and use of ECs among adolescents is concerned. Service providers in Addis Ababa, Ethiopia had a subjective attitude to adolescent girls, that EC use encourages promiscuity (Dawit, Van Der Merwe, & Smith, 2010).

It was found out that urban service providers in Nepal had generally supportive ideas, but rural pharmacists had more cultural and conservative attitudes. Some service providers especially private-owned have misinformation about the use, effectiveness, and protocols to use among adolescents (Collins et al., 2018). Evidence reveals that 65% were willing to provide it to the

women in need, and only 13% would provide them to the minors (Ehrle & Sarker, 2011). For the above reason, most of them are against ECs being part of over the counter (OTC) drugs (Khan, Dixit, & Bhatnagar, 2014; Lee et al., 2012).

Health providers' social norms, cultural attributes, and attitudes seem to affect the quality of service provision (Mayhew, Osei, & Bajos, 2013). Studies have found that service providers report hesitancy in the provision of ECs to adolescents because of fear of being judged by the community to be the ones promoting sexual behaviors among teens. This is a profound bias to adolescents' utilization of ECs (Savage-Oyekunle & Nienaber, 2017; Whitaker et al., 2016). There is also segregation in provision among unmarried adolescents compared to young unmarried (Wendot, Scott, Nafula, Theuri, Ikiugu, & Footman, 2018). Also, though 64% of the pharmaceutical outlets have ECs, half of them were securely locked, requiring permission from the pharmacy employee, which reduces access to EC (Collins, Schneider, & Moles, 2018; Haeger, Lamme, & Cleland, 2018).

Researchers have pointed out that training service providers not only improve knowledge but also decreases the bias of EC provision to all ages including adolescents (Schwandt, Speizer, & Corroon, 2017)(Wendot et al., 2018).

2.5.3 Reinforcing factors to access and use of ECs among adolescents.

Reinforcing factors are community-based enhancers that motivate adolescents to access and use ECs. Community factors have a role to play in the use of ECs among adolescents. The key opinion leaders and the community health workers/village health teams motivate, counsel, encourage and influence the access and use of ECs among adolescents. The key opinion leaders have the mandate to provide policy guidelines, standard operating procedures, training, and any

other technical support to the service providers and the community on the use and provision of ECs to the adolescents.

Recent research found that key opinion leaders had knowledge gaps. In this regard, governments need to take a greater role in policy, management, and monitoring issues concerning adolescent health (Akamike, Okedo-Alex, Eze, Ezeanosike, & Uneke, 2020). Key resource persons who were the source of information were often seen as role models (Tilahun, Mengistie, Egata, & Reda, 2012). There is no such related research carried out in Uganda.

The World Health Organisation developed adolescent-friendly policies, strategies, standards, and training manuals and included the VHT community approach. The main reason for this strategy was to encourage adolescents to seek services (Asingwire et al., 2019; WHO, 2022a). Further, the village health team (VHT) strategy supplements adolescent and youth corners, which are designated to provide separated youth/adolescent-friendly health services; these were established in 2011 but implemented in the HSSIP2010/11-2014/15.

Most of the studies have used the word community health workers for village health teams, whose responsibilities and obligations towards improving health remain the same. In Senegal, the community health workers needed information about EC services to the youth, and it was important for the EC services to extend to the community level. This is not a different scenario from the developing countries' situation (Mane, RamaRao, Brady, Mbow, & Thiam, 2012).

The approach of the community health workers has also been used in developing countries to make sure services reach nearer to the people (Dawson et al., 2015). As far as ECs use and provision are concerned, most of these community health workers did not differentiate between this type of contraception and other modern methods. A study in Nigeria showed that VHTs did

not know about EC provision to the adolescents (Mba, Obi, & Ozumba, 2007). Community health workers do not prefer to refer adolescents because of the attachment to promiscuity, cultural-religious beliefs, adding that community health workers needed information on the use of ECs (Akamike et al., 2020).

2.6 Interventions to prevent adolescent pregnancies

Most of the interventions used to prevent pregnancies among adolescents include formal education, contraceptive use, and the adoption of multiple interventions (combining education and contraception promotion interventions). Some interventions have tailored sensitization of adolescents using interactive video-based and computer-based interventions. (DeLamater, Wagstaff, & Havens, 2000) and Hokororo et al.,(2015) used an intervention that included videos/books about condom use form for intervention and brochures for the control group among African American teens. The teens were followed up for 1, 3, and 6 months. There was a significant improvement in the use of condoms and reduction of STDs in the intervention arm compared to the control arm.

Some studies showed that written material actually, showed a significant reduction in adolescent pregnancies, as a result of the decrease in sexual activity (M. A. B. Smith, 1994). While pregnancy-free clubs as a school-based strategy which yielded a reduction in the prevention of repeat pregnancies from 25% to 7.2% over 9 years (Schaffer, Jost, Pederson, & Lair, 2008). used. Health education strategy in the intervention group in secondary schools and found a 2.5-times likelihood of use of contraception among the intervention group (Mba, Obi, & Ozumba, 2007). Some studies included education and contraceptive promotion strategy (also called safer choices) among in-school adolescents using adult and youth-led interventions in high schools,

which significantly reduced risky sexual behavior among the intervention group (Coyle, Kirby, Marín, Gómez, & Gregorich, 2004; Kirby et al., 2004).

There have been interventions tailored to the utilization of emergency contraception among adolescents. A program for advance promotion and emergency contraception, which included participants aged 14-20 years (Raine et al., 2005). The interventions included pharmacy assessment, advanced provision of contraceptives (unlimited free supply) for the intervention group against standard access for the control group. (Raymond, Stewart, Weaver, Monteith, & Van Der Pol, 2006) had the same intervention for the participants of 15-24 years. The intervention showed an increase among the unlimited free access, followed by pharmacy access compared to the standard access. But contraceptive use among the intervention groups was 2 times higher than the control group.

Some interventions had been employed to reduce adolescent pregnancies. These were carried out in developed countries (most of these projects were implementing life skills, nurturing the adolescent to maturity, adapting to a three-generation parenting curriculum). All these programs were for out-of-school adolescents with interventions, including pregnancy testing, nutrition, counseling and referral services, prenatal and postnatal care. The results were promising in the life skills among adolescents and this impacted on reduction in pregnancy (Kan et al., 2012).

A quasi-experimental design of intensive care management (ICM) intending to delay second births among adolescent mothers. They found out that within 3 years, the pregnancies reduced compared to the control group (Lewis, Faulkner, Scarborough, & Berkeley, 2012). Black et al., (2006) conducted a home-based mentoring intervention program with intent to treat analysis (using contraception) revealed that the control group was more likely to have the next pregnancy.

The intervention study to examine the impact of the training of 270 general practitioners in India found that 31.1% of service providers had attended the training. From this survey, 69.9% of the service providers were never trained on ECs (Khan, Dixit, Bhatnagar, & Brady, 2014). There was a significant positive difference in EC knowledge, attitude, and use. Another similar study to assess the training outcome of paramedical to dispense EC included 102 nurses and services providers found that knowledge significantly increased as a result of the training provided (Gawade et al., 2009). The literature reviewed open discussions to generate intervention studies tailored to improve EC access and use among adolescents especially in developing countries where there is low utilization versus high pregnancies.



CHAPTER THREE

3.0 RESEARCH METHODS

3.1 Introduction

This chapter describes the study design, area, population, sampling techniques, data collection tools, data quality control, ethical considerations, and data analysis methods. The chapter finally gives insights into how the analysis plan was carried out, as well as ethical issues.

3.2 Study design

This research employed a quasi-experimental study design with non-equivalent intervention and control groups with mixed methods approach. This study was a pre-post with non-equivalent control groups (Miller, Smith, & Pugatch, 2020). This is because the districts involved in the study had an unequal number of health facilities and village health teams. Furthermore, the design was suitable for smaller sample sizes than randomized trials (Thomas, 2020). The study design evaluated the causal relationship between the intervention and the outcome (Miller et al., 2020). The study districts were purposively selected based on the matching of socio-demographic characteristics while others were taken as buffers to avoid contamination. The rural/urban selection for the study was based on the availability of public health facilities that provide ASRHS. The mystery client approach was employed to assess the quality of EC service provision by the service providers pre- and post-intervention.

The design of the intervention was theory-based and conceptualized using the PRECEDE-PROCEED model. The model was used for identifying the salient factors influencing the access and use of ECs by adolescents. The rationale for the conceptualization of the study was that once the determinant factors are identified, they can be improved by modifying the predisposing, reinforcing,

and enabling (PRE) factors. The intervention was designed to address predisposing factors that influence EC access and use such as adolescents' knowledge, attitudes, and beliefs. The intervention was also anticipated to address enabling health system factors such as service providers' knowledge, attitude, confidence, and practices, and reinforcing factors such as VHTs' abilities to support, motivate, counsel, refer and follow up adolescents accessing contraceptive services as indicated in the conceptual framework.

The study was carried out in three phases as follows:

- i) A baseline study, which employed both quantitative and qualitative methods to investigate and explore adolescent perceptions regarding EC use, and health provider and VHT factors associated with access and use of ECs by adolescents. The baseline study lasted 2 months.
- ii) A Reproductive Health Educational Intervention (RHEI) that provided enabling knowledge and skills to health care providers and community actors to enhance the promotion and access to ECs by adolescents. The RHEI was carried out in 3 days.
- iii) A post intervention assessment in 2 phases; 3 and 6 - months post-intervention to measure any changes in knowledge, attitudes, perceptions, and practices of adolescents and VHTs using an interviewer-administered questionnaire. Any changes in the knowledge, attitude, and practices among health care providers were observed using the mystery client's approach to access and use of ECs by adolescents.

3.3 Philosophical basis of the study

Numerous philosophies guided the methodology of the study. This included axiology, a philosophy concerning judgment and ethical concerns, epistemology, a philosophy that examines both the researcher and the subjects, and ontology, a philosophy that examines the nature of the

research's reality. Subjective and objective research methods, which can be qualitative, quantitative, or both, were required to study reality.

For the qualitative research component of the study, the research centered on interpretivism, a philosophy that helps individuals in perceiving reality. This philosophy was imparted in the VHTs as they visited adolescents and assisted them in gaining access to and utilising ECs. In addition, positivism assisted in viewing knowledge through observation and measurement. The service providers were instilled with optimism to enhance their knowledge, attitude, and practices when administering ECs to adolescents. All these ideologies contributed to the integration of the data collection process and its significance.

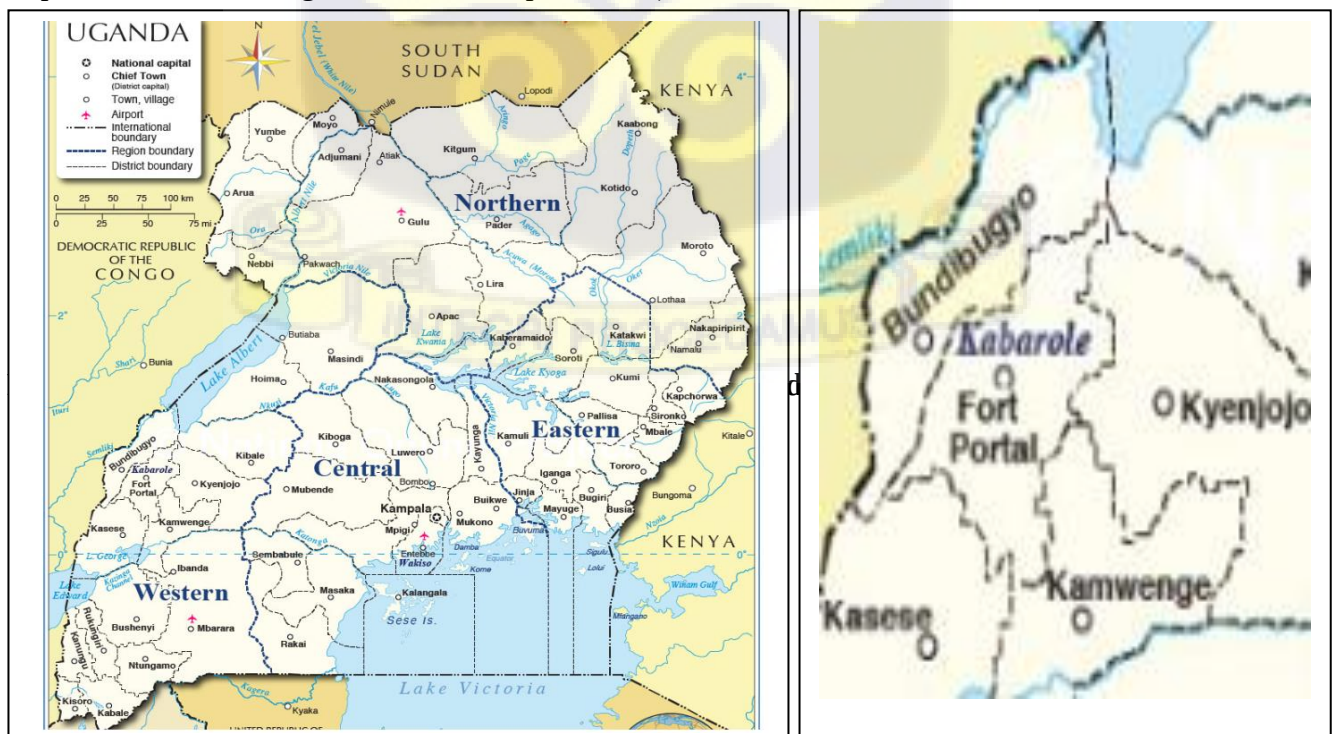
3.4 Study Site and Population

3.4.1 Study site

The study was conducted in the Tooro sub-region of Uganda, located in East Africa. Uganda borders five neighboring countries, namely; Kenya, Tanzania, Rwanda, the Democratic Republic of Congo (DRC), and South Sudan and shares natural resources such as Lake Victoria and the Nile River. Uganda's population is estimated at 45.6 million in 2020 including massive migrants from war areas such as South Sudan and Democratic Republic of Congo. The population growth rate of the country is 3.5% per year (UBOS, 2017). Four decentralized regions make up this country, namely; Central, Western, Eastern, and Northern regions. The Western region, which is the third largest, was the focus of this study. The region borders the north region to the North, the central region to the East, Tanzania to the South, Rwanda to the South-West, and DRC to the West. The area covers 55,276 sq kms of land with a population of 8,874,862 people and is divided into 26 districts (UDHS, 2016; Uganda Demographics, 2020).

The Western region is further divided into 4 sub-regions; Bunyoro, Tooro, Kigezi, and Ankole. Specifically, the study was carried out in Tooro sub-region. This sub-region was selected because it has one of the highest adolescent pregnancies in the country (UDHS, 2016). According to the recent Uganda demographic health survey (UDHS, 2016), 22% of adolescents 15-19 years in this sub-region have had a live birth, 8% have become pregnant with their first child, and 30.3% have started childbearing, respectively, higher than other sub-regions of the country with the national average at 19.4%, 5.4%, and 24.8% respectively. (UDHS, 2016: table 5.11, pg 132).

Tooro sub-region is a rural setting with semi-urban administrative areas. The sub-region has a total population of 2,528,820 people and 545,364 households. It is divided into Bundibugyo, Kabalore, Kasese, Ntoroko, Kyenjojo, Kamwenge, and Kyegegwa districts. Kasese is one of the biggest districts in Uganda with a total population of 694,992 people. Kabalore, Kyenjojo, Kamwenge, Kyegegwa, Bundibugyo, and Ntoroko districts have 469,200, 422,204, 414,454, 281,637, 224,400, and 67,005 people respectively. The majority (90%) of the people depend exclusively on small-scale agriculture predicting a low social-economic status (National Population and Housing census, Main report, 2014).



3.4.2 Study Population

The study involved adolescents aged 14 to 19 years, EC service providers, village health team members, and key opinion leaders in selected districts of the Tooro sub-region. The facilities included pharmacies, drug shops, adolescent health corners, and public health centres that provide ECs. The key opinion leaders engaged in the study included the Ministry of Health Officer in charge of ASRHS, the Director of Reproductive Health Uganda, the Speaker of Parliament who has authority on policy formulation and analysis, the Director of Uganda Private Practitioners Association who is responsible for monitoring the quality of service provision in the private sector, the District Health Officers of selected districts because they are involved in planning and resource allocation, the District Drug inspectors for their monitoring and quality assurance responsibilities, and the village health team members who are expected to encourage, motivate and counsel on the utilisation of RH services, which include EC services.

3.4.3 Inclusion and Exclusion criteria

Inclusion criteria

The study included out-of-school adolescents aged 14-19 years because they have a high likelihood of having unwanted pregnancies (De Neve et al., 2020). The providers of ECs who work in both public and private facilities that provide over-the-counter medicines were included because of increased timely service provision (Atkins et al., 2022). The service providers who had worked in the area for more than 3 months and did not intend to leave the study area within the study period were included in the study.

The village health team members who were peer educators and did not intend to leave the study area over the study period (12 months) were included. The peer educator VHTs of 25 years and below were included because the adolescents are perceived to associate with them as they are in

a similar age-group and therefore would understand their problems without judging them. VHTs were given the mandate to provide health education services, encourage follow up and perform other psychological counseling to adolescents. The adolescents and VHTs that were natives of the study area were included in the study.

Exclusion criteria

The study excluded adolescents who were attending school or outside the study area. The adolescents, service providers and VHTs who did not consent to be part of the study were excluded.

3.5 Sampling

3.5.1 Sample size determination

For adolescents,

The sample size for the **quantitative component** of the study was determined using the formula by Hulley SB (2013)

$$N = (4 Z_{\alpha}^2 P(1-P))/W^2$$

where Z_{α} is a standard normal deviation for a two-sided α where $(1 - \alpha)$ is the confidence level and for a 95% confidence level $Z_{\alpha} = 1.96$,

P = Expected proportion of adolescent pregnancy in the study area is 30.3%.

W = Total width of the confidence interval (equal to twice the margin of error) = 0.10. (Berlowitz, 2014)

Sample size = $(4 \times 1.96^2 \times 0.303(1-0.303)/0.1^2 = 324$ adolescents to participate in the study, plus 10% that catered for non-response rate. Hence, the total sample size of adolescents included in

the study was 356. An equal number of adolescent participants was targeted to be recruited from each district.

Selection criteria for adolescents.

The adolescents were selected using a systematic random sampling method. The village health team members brought the list of all out of school adolescents from their respective parishes/wards. These included the name of the adolescent, the household head and the parish/ward. The parishes/wards were arranged in order, and therefore the lists were arranged to make the sampling frame which comprised 4275 adolescents. The index number was selected randomly, and the subsequent 12th number was selected till the sample size of 356 adolescents was achieved.

The qualitative component of the study intended to investigate the policy, ethical, legal, socio-economic, and cultural factors associated with EC use among adolescents by gathering information about opinions and insights from key opinion leaders. For this component of the study, according to Denzin and Lincoln (2011) and Bryman (2012), 15–30 participants were sufficient for a study based on qualitative research methods to ensure that adequate data was obtained, and that thorough and meaningful data analysis was done (Bryman, 2012; Creswell, 2007). Therefore, a sample size of thirty (30) participants was used. They were distributed as follows: 4 respondents at the national level, including the Ministry of Health Officer in charge of ASRHS, the Director of RHU, the Speaker of Parliament, and the Director of the Uganda Private Practitioners Association. Thirteen (13) participants were selected from each of the two districts to be interviewed for the study. These include three (3) key opinion leaders, six (6) village health team members, and four (4) adolescents from each district.

3.5.2 Selection of intervention and control study sites

The districts for the study included Bundibugyo and Kamwenge. Kasese and Kyenjojo could have been the best alternative pair. However, according to demographics, Kasese has a municipality embedded in the district, while Kyenjojo only holds district status. Kasese is a district that has been upgraded to include a municipality with three divisions, five town councils, and twenty-seven sub-counties. Kasese district has 60 HC IIs, 21 HC IIIs, 2 HC IVs, and three hospitals, while Kyenjojo has seven town councils and 12 sub-counties. Kyenjojo district has 7 HC IIs, 9 HC IIIs, 1 HC IV, and one hospital (National Population and Housing Census, main report 2014; Health Facility Master Class List, 2020, compiled by Baylor Uganda). To mitigate the drawback of internal validity resulting from a quasi-experimental design, the study considered districts that have similar characteristics by matching (Miller et al., 2020). Therefore, these descriptions excluded the Kasese/Kyenjojo pair because of such variances. Further, to create a buffer zone and avoid contamination, Kabarole, Kyegegwa, and Ntoroko in the middle belt were not included in the study.

The most appropriate pair of districts chosen was Bundibugyo/Kamwenge because of relatively similar demographic and population characteristics.

Table 1: Demographic characteristics of Bundibugyo and Kamwenge districts

Sn	Item	Bundibugyo	Kamwenge
1	Population	224,400	414,454
2	Rural population	84% (188,726)	94% (391,546)
3	Adolescent population	20812	38032
4	Town councils	6	5
5	Sub-counties	16	9
6	Wards (in the selected town council)	6	5
7	Parishes (in the selected sub-county)	4	4
8	Health Centre II	14	14
9	Health Centre III	8	8
8	Health Centre IV	1	1

Source: National Population and Housing census, 2014; Health facility master class list, 2020; Bundibugyo and Kamwenge district records, 2020).

At the district level, the town council where the administrative offices are located was selected. These town councils are the most populous, busy, and largest in the district for their urban setting. A sub-county in a rural setting that had a health-centre IV was selected. This level is expected to cater to adolescents' SRHS, including EC services. According to the district health records, Health Centre IV facilities are in Ngamba and Nkoma sub-counties in Bundibugyo and Kamwenge districts (Bundibugyo and Kamwenge district records, 2020). The choice of rural and semi-urban settings was to understand the differences in EC service provision for adolescents. The selection of the intervention or control arm was done randomly using the ballot paper. The name written on the first paper picked fell under the intervention arm, and the remaining district was selected as a control site.

3.5.3 Sampling procedure

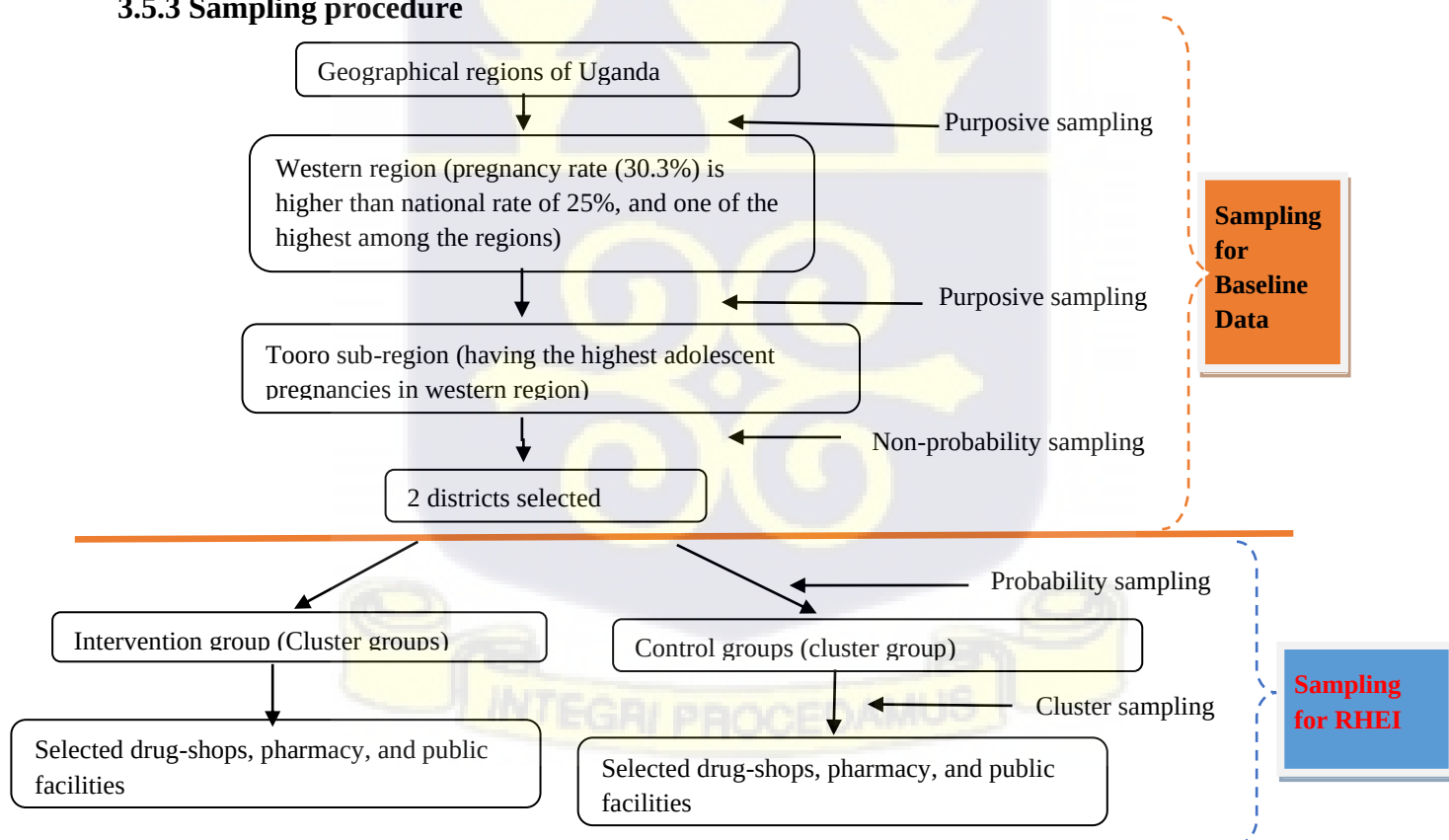


Figure 3: The sampling procedure

The sample size for service providers

From the District Drug Inspectors, below is the table outlining the health facilities of Kamwenge and Bundibugyo districts.

Table 2: Health facilities for Kamwenge and Bundibugyo districts

District		Kamwenge district		Bundibugyo district	
	Facilities	Town-council	Sub-county	Town-council	Sub-county
1	Pharmacies	3	1	5	1
2	Drug-shops	12	10	13	11
3	HClVs	1	1	1	1
	Total	14	12	19	13

A total of 28 and 31 facilities are derived from the selected sites of Kamwenge and Bundibugyo districts with a total of 59 health facilities. Each facility has an average of 2 service providers (giving a total of 118 service providers).

For an intervention study, the sample size was adequate if the post-intervention mean scale was at least 15% higher in the intervention study than in the control group. With a significance alpha of 0.05% and a power of 80%, the sample size required was 23 facilities for each group (Chaveewan Ratanajamit & Chongsuvivatwong, 2002). Two (2) service providers per facility were involved in this intervention study. Therefore, a total of 46 participants were considered under the intervention arm. Furthermore, the mystery clients identified the facilities that provide ECs through mapping. All facilities that provided ECs were included in the study. The number was small, manageable in cost and training, and also gave high-effect intervention outcomes.

3.6 Study instruments

Table 3: Study instruments

Sn	Type of questionnaire	To whom questionnaire is directed	Design of study instrument
1	Adolescent Questionnaire	Adolescents who have/haven't used ECs	Quantitative
2	Adolescents' interview guide	Adolescents who have used ECs.	Qualitative
3	Service providers' questionnaire	Service providers in both private and public facilities (including pharmacies, drug-shops, and adolescent corners,)	Quantitative
4	Mystery client questionnaire	Mystery clients	Both quantitative and qualitative
5	Key informants' interview guide	☐ Coordinator for Private Practitioners Association ☐ Speaker of Parliament ☐ MoH Coordinator for ASRH, ☐ DHO's in-charge of health facilities ☐ Village Health Teams	Qualitative
6	Training guides	SP and VHT training manuals	Not applicable

The study instruments and tools were developed by the researcher to generate primary data.

Data sets from adolescents, service providers, mystery clients, village health teams, and key opinion leaders were generated. Data was collected using the tools as described in 3.6.1.

3.6.1 Adolescent questionnaire

Background/socio-demographic information. These included adolescent demographics: age, ethnic origin, level of education, marital status, and residence, and menarche.

Predisposing factors for EC access and use

Past sexual history included whether adolescent had ever had sexual intercourse, age at first sexual encounter, whether individual had sex in the past 2 or 12 months, and with how many partners.

Knowledge data included whether the adolescents had ever heard of EC, its definition, examples, indicators, and the time in which ECs are effective. Attitudinal questions included whether the

adolescents agreed that ECs should be freely accessible like condoms, attitudes about side effects, efficacy, willingness to take ECs, religion, and cultural acceptance of access and use of ECs, and attitudes about ECs being taken by both unmarried and married adolescents. Data on the history of EC use included ever-used ECs, age at first use, times of EC use if still using ECs, and other forms of modern contraception used.

Reinforcing factors for EC access and use

Reinforcing data included the source of ECs, distance to the facility where ECs are obtained, cost, and affordability. The VHTs data included visiting/being visited by the VHT, VHT encouraging, motivating, and facilitating adolescents to access and use ECs.

Enabling factors for EC access and use.

Data generated included service providers' abilities to provide instructions on how, when, and what dose is to be swallowed. Another concern was about making sure the adolescents are motivated, supported, and encouraged by the service providers to access and use ECs. Data on privacy, confidentiality, and obtaining ECs without descriptions were generated. This data was collected from adolescents and mystery clients.

3.6.2 Service providers questionnaire

Background/socio-demographic characteristics

Service providers' demographics which included age, gender, cadre, religion, type of facility, and years of experience, and residence were collected (see table of variables and their categories).

Service provider factors influencing provision of ECs to adolescents

The factors included knowledge about definitions, kinds of ECs on the market, efficacy, indications, contraindications, timing, any training, and sources of information. Other data on

indications like; used in rape, sexual cohesion, and unplanned sex, given in refugee or conflict settings, perceived to cause cancer, and preventing pregnancy by blocking implantation Data on the attitude of service providers included: ECs being given freely to adolescents; feelings of immorality among adolescents who take ECs, especially the unmarried; religiosity; and cultural and societal attributes associated with giving ECs to adolescents. More data concerning perceptions, including the confidence to prescribe, identify types of ECs, give information on the timing, indications, contraindications, and side effects, follow-up, and referral to adolescents, was generated. Data on practice, including whether adolescents are given instructions, provide ECs to unmarried adolescents, write information and advice, and make sure the adolescents understand the instructions, was collected.

3.6.3 Mystery client questionnaire

The mystery clients' questionnaire contained demographic data, namely; ward or sub-county, location of the facility (rural or urban), owner of the facility (government or private), and type of facility (pharmacy or drug shop). Other data included the attitude of health workers (offering a greeting, seat, inquiry, giving information and medicine, giving advice on the medicine, follow-up), quality of service provision (privacy, confidentiality, waiting time), and practice (packing, writing the dose, reading the dose and instructions to the client, seeking clarification, giving room to ask questions).

3.6.4 Key informants and focus group discussion instruments

Interview guides for key informant interviews and focus group discussions were developed.

Data collected included the insights and opinions of the key informants and focus group discussions with the adolescents. Some insights and opinions dwelled on the accessibility, availability, and affordability of ECs. Themes included adolescents' individual, social-economic,

and health facility factors. Data on health system factors and support for service providers to provide ECs was also generated. Issues related to guidelines, policies, and the integration of ECs into private and public health systems were discussed.

3.6.5 Training material

The training guide was adapted from the guidelines for the provision of emergency contraception. The documents were developed and aligned with already developed tools by the Ministry of Health under the Family Planning Department/Adolescent Sexual and Reproductive Health Unit.

3.7 Pre-data collection activities

3.7.1 Training of Research Assistants

The research assistants were equipped with the necessary information and skills for the study and data collection using a training manual. This enabled them to effectively perform their duties that contributed to the quality of data collection including monitoring procedures. Six research assistants with a Bachelor's degree with a health background such as Nursing/Public Health were recruited for this study. Training took place in a classroom set-up for 3 days and a practical demonstration occurred on the second day. Skills for accurate and reliable data collection and record-keeping were reviewed and emphasized. The topics covered under this training included the objectives of the study, background on adolescents' access and use of ECs, selection of study participants, interviewing skills, giving, signing, and receiving informed consents from participants, reviewing all questionnaires and recordings after data collection, translations of questionnaires into Rukonjo and Runyankore for those who did not know English.

3.7.2 Pre-testing of Study instruments

The questionnaires and focus group discussion guide used were tested on adolescents in Mbarara district. The key informant interview guide was tested on the District Health Officer of Mbarara district. The tools were tested to ensure clarity, consistency, relevance, and completeness.

Data collection timelines

The period of field work was from August 2021 to September 2022. The baseline study was done in August and September 2021. Preliminary findings were analyzed in November and December 2021. An intervention was carried out in February 2021, which was preceded by 3 months of post-intervention data collection in May 2022, then after 3 more months post-intervention data was collected in August and September 2022.

Implementation of Educational intervention

Training Service Providers: Service providers were trained on the blended content of adolescent sexual behaviours as well as EC access and use. A deep understanding of EC content, including use, efficacy, dose, administration, side effects, myths, and misconceptions, was also included in the training of service providers. Counselling adolescents on the use of ECs was part of the content. This was two days of intense service provider training. At the end of the second day, the training evaluation was conducted using the same questionnaire as in the baseline assessment pre-training.

Training VHTs: The VHTs were invited for a 2-day training session in a session dubbed "strengthening VHT involvement in EC use among adolescents". The content of the training emphasized: information on complications of adolescent pregnancies, first the importance of EC use among adolescents, then the importance of attending SRHS, pregnancy prevention, social-

economic and cultural support, where to get ECs, decision-making, expectations, and gender issues, with further emphasis on EC use to avoid unwanted pregnancies. A post-training assessment was carried out immediately after the training. The VHTs had the responsibility to register adolescents who had been approached, counselled, and the follow-up and actions taken. The VHTs provided reminders and assistance in case of any questions from the adolescents. The VHTs were monitored monthly and reported their input to the researcher.

3.8 Study variables

The study variables include the dependent and independent variables as summarized Below

Table 4: Description of variables used for the study.

	Variable	Definition	Scale of Measurement
A) PREDISPOSING FACTORS TO ACCESS AND USE OF ECS AMONG ADOLESCENTS			
a) Adolescents' individual factors			
1	Age of the adolescent	Age at last birthday	Binary
2	Level of education	Categorized as none, primary, secondary, post-secondary, others	Categorical
3	Religion	Categorized as; "Catholic, Anglican, Muslim, Pentecostal, or traditionalist	Categorical
4	Marital status	Categorized as married, Not married	Categorical
5	Ethnicity	Categories will include Banyankole, Baganda, Batooro, Bakonjo, Babwisi, and others	Categorical
b) Knowledge and attitude of adolescents on ECs among adolescents			
6	Knowledge	Based on the 4-point Likert scale. Final categorization will be "knowledgeable", or "not knowledgeable"	Categorical
7	Attitude	"Positive" or "negative" attitude	Categorical
	Perception	Phrased qualitatively	Categorical
B) REINFORCING FACTORS TO ACCESS AND USE OF ECS AMONG ADOLESCENTS			
1	Knowledge of VHTs on ECs	Based on 4-point Likert scale and analysed as strongly agree, agree, disagree, strongly disagree	Categorical
2	Attitudes towards EC access and use among adolescents	Phrased qualitatively	Categorical
3	Practices	Expressions qualitatively phrased	Categorical

C) ENABLING FACTORS TO ACCESS AND USE OF ECS AMONG ADOLESCENTS			
a) Service provider individual socio-demographic factors			
1	Age	Age at last birthday.	Continuous
2	Gender	Male or female	Binary
3	Qualification	Medical officer, clinical officer, nursing officer, midwife, nurse, nursing assistant.	Categorical
4	Income level	classified as low-, middle- or high-income earning group as defined by the Uganda demographic categorization	Categorical
5	Marital status	Categorized as married, unmarried.	Categorical
6	Religion	Categorized as; “Catholic, Anglican Muslim, Pentecostal, others (specify).	Categorical
7	Ethnicity	Categories will include Banyankole, Baganda, Batooro, Bakonjo, Bamba, and others”	Categorical
8	Residence	Urban, or rural.	Categorical
10	Type of health facility	Public or private or adolescent corner	Categorical
b) Service providers Knowledge, attitude, and practices			
1	Knowledge	Final categorization will be “knowledgeable” and “not knowledgeable”	Categorical
2	Attitude	“Positive” or “negative” attitude	Categorical
3	Confidence	“Confidence” or “not confidence”	Categorical
4	Practices	“Good practices” or “bad practices”	Categorical
c) Other health system factors for access and provision of EC to adolescents			
1	Guidelines and policies concerning ECs services	Present or absent	
2	Availability, Accessibility, and affordability of ECs at the health facility	Availability: “Available” or “not available” Accessibility: “Accessible with prescription”, “accessible without prescription”, and “not accessible” Affordability: “Affordable” OR “not affordable”	Categorical
3	Distance to the health facility	Less than 1 km, 1-5kms, 5-10kms, more than 10kms	Continuous
D) INTERVENTION OUTCOME VARIABLES			
1	Intervention outcome	-Number of adolescents who have been counselled, and referred for EC services (pre- intervention, then 3- and 6-months post intervention) -Number of adolescents who used ECs (pre-intervention, then 3- and 6-months post intervention) - Compare service provision among private and	Categorical

		public service providers (pre- intervention, then 3- and 6-months post intervention) -Change in knowledge, attitude/beliefs of VHTs on EC use among adolescents. To estimate the effect of the intervention on: <table><tr><td>change of the following among adolescents: 1) knowledge, 2) attitude 3) use 4) Access</td><td>change of the following among service providers; 1) knowledge, 2) attitude 3) practices</td></tr></table>	change of the following among adolescents: 1) knowledge, 2) attitude 3) use 4) Access	change of the following among service providers; 1) knowledge, 2) attitude 3) practices	
change of the following among adolescents: 1) knowledge, 2) attitude 3) use 4) Access	change of the following among service providers; 1) knowledge, 2) attitude 3) practices				

3.8.1 Dependent variables

The main dependent variables are **access and use** of ECs among adolescents.

“**Access**” was measured by obtaining data on the adolescents who visited service providers/VHTs to access EC services.

“**Use**” was measured by obtaining data on the adolescents who used ECs. **The questionnaire was used to collect this data.**

Other dependent variables assessed include the **knowledge, attitude, and practices of service providers.**

3.8.2 Independent variables

Independent variables included predisposing, reinforcing, and enabling factors influencing EC access and use.

Predisposing factors

Adolescent demographics included age (10-14, 15-19), level of education (highest completed level of education), marital status, and residence. Other predisposing variables included adolescents’ individual factors mainly sexual encounter questions. Other factors included

knowledge, and attitudes about ECs use. There were five questions that assessed knowledge. Assessment of attitude included 12 phrases (section B of the questionnaire).

Reinforcing factors

Reinforcing factors included VHTs support to the adolescents to access ECs. VHT demographics included age, years of experience, religion, and residence. Other factors included government support, ECs availability, accessibility, and affordability, and policy issues to improve ECs utilization to the adolescents.

Enabling factors

Service providers' included demographics: age, gender, cadre, religion, type of facility, and years of experience. The service provider factors included knowledge, attitudes, confidence, and practices. Knowledge was measured with multi-choice questions. Twelve (12) attitudinal questions, seven (7) questions assessed practices and nine (9) confidence questions were measured on a 4-point Likert scale.

3.9 Ethical consideration

Ethical issues, standard behaviours, and practical procedures were followed by the research team. In conducting this study, the researcher took into consideration the ethical issues of regulatory approvals, informed consent, confidentiality, voluntary participation, no harm, and plagiarism. Ethical approvals were obtained from the Uganda National Council of Science and Technology, Ethical Review Board, Kampala, Uganda (Ref: HS1829ES). There were approvals by the Ministry of Health in Uganda. Emancipated minors were requested to complete their consent forms (like the already pregnant women), adolescents were requested to complete the assent forms, and parents or guardians also completed the consent forms to allow their children

to participate in the study. The service providers and the key informants were requested to complete the consent forms.

To ensure confidentiality, each adolescent was interviewed alone and separated from the rest of the family members. The social distance strategy was used to prevent the spread of COVID-19 and was tailored to increase confidentiality and privacy, especially among adolescents who were being interviewed, from other family members.

3.10 Data entry and management

For quantitative data, EpiData software version 3.1 was used to capture data from the questionnaires designed with appropriate variable definitions, consistency checks, and skipping patterns. The investigator, supervisor, and research assistants edited and cleaned the data to remove inconsistencies and recording irregularities.

The study generated eight datasets. The three quantitative data sets were generated from adolescents, service providers, and mystery clients, and three qualitative data sets were obtained from adolescents, key opinion leaders, and village health team members. The qualitative data were triangulated with quantitative data to increase their validity and reliability.

3.11 Data analysis

STATA software was used to perform data analyses. Data were checked for outliers by converting raw data into Z-scores, and it was anticipated that not less than 95% of the data had an absolute value of a Z-score less than 1.96 (Field 2009). Further, some continuous variables, such as age at sexual initiation, number of sexual partners, and number of times using ECs, were assessed for normal distribution. Data analysis included descriptive, cross-tabulation, and logistic regression, especially using binary logistic regression models.

3.11.1 Analysis of Quantitative data.

Descriptive statistics were determined using frequency distribution tables and charts that were obtained from nominal and ordinal variables. The units of analysis were mean, median, and standard deviation. Indices of skewness and kurtosis were checked to assess the symmetry and peaking of the data.

Inferential statistics Chi Square, and Fishers Exact tests were used to measure the effect of the intervention on the dependent variables (as explained in 3.11.4). These were used to measure the level of significance of outcome variables like knowledge, attitude, perceptions, and practices among adolescents and service providers as far as ECs were concerned. An alpha of 0.05 was used to determine statistical significance in all statistical procedures. For the assessment of scores on knowledge, attitude, perceptions, and practices, a pass mark criterion of 80% was established for predisposing, reinforcing, and enabling factors as described in Section 3.9.2.

3.11.1.1 Analysis of Predisposing factors

Predisposing factors of adolescents' access and use of ECs include their knowledge and attitudes. An outcome variable of 'knowledgeable/not knowledgeable', 'positive/negative attitude', 'confident/not confident', and 'bad/good practice' was derived. A computed variable of "knowledgeable" when the score is $\geq 4/5$ or 'not knowledgeable' when the score is $< 4/5$ was generated. The binary computation of a "positive attitude when the score is $\geq 10/12$ " or "negative attitude when the score is $< 10/12$ " was also generated on the attitude. The questions were scored on a 4-point Likert scale (strongly agree = 0, agree = 1, disagree = 2, strongly disagree = 3). Further, bivariate analysis to determine the association between the demographic variables and outcome variables (knowledge and attitude) was considered significant at $p < 0.05$ and 95% CI.

Since most of the variables are categorical, they were analysed using Pearson's chi-square (χ^2) to measure the strength of the association.

3.11.1.2 Analysis of enabling factors

The variables described under enabling factors included service providers' knowledge, attitude, confidence, and practice. An outcome variable of 'knowledgeable/not knowledgeable' and 'positive/negative attitude' was derived. The computed binary variable was 'knowledgeable' when the score was $\geq 10/12$ or 'not knowledgeable' when the score was $< 10/12$. The overall computed score for attitude was 'positive attitude' when the score was $\geq 10/12$ or 'negative attitude' when the score was $< 10/12$. The questions were on a 4-point Likert scale (strongly agree = 0, agree = 1, disagree = 2, strongly disagree = 3). The computation binary score for the perception of confidence of the service providers was 'has confidence' when the score was $\geq 7/8$ or 'has no confidence' when the score was $< 7/8$. This was on a 4-point Likert scale (very confident = 3, confident = 2, confident but needs assistance = 1, not confident at all = 0). The practice binary variable computed was; 'good practice' when the score was $\geq 6/7$ or 'bad practice' when the score was $< 6/7$. The questions were on a 4-point Likert scale (strongly agree = 0, agree = 1, disagree = 2, strongly disagree = 3). The association between dependent (knowledge, attitude, confidence, and practice) and dependent variables (service providers' demographic characteristics) was significant at $p < 0.05$, using bivariate and multivariate analysis to determine the potentially associated variables and their strength of association.

The evaluation of the service providers by mystery clients generated an important assessment of the enabling factors. These were analyzed qualitatively but with some quantitative aspects. The computation of independent variables (demographics) and dependent variables (attitude, quality

of service, and practice) was analyzed to determine the strength of the association at $p < 0.05$, 95% CI.

3.11.1.3 Analysis of reinforcing factors

VHT concerns were aligned on a 4-point Likert scale (strongly agree = 0, agree = 1, disagree = 2, strongly disagree = 3) with the overall evaluation of good or bad VHT support. The binary variable was computed, describing that 'VHT is supportive' when the score is $\geq 3/4$ or 'not supportive' when the score is $< 3/4$. The association between the computed dependent binary variable and independent variables (demographic characteristics of the adolescents) were determined at $p < 0.05$, 95% CI, using bivariate and analysis to determine the relationship between VHTs' support and the adolescents' access to and use of ECs.

3.11.1.4 Analysis of the effect of RHE intervention on the knowledge, attitude and practices of service providers, and utilization of ECs among adolescents

Descriptive statistics and bivariate analysis, which include chi-square test and p-values, were generated to describe the knowledge, attitude, and practice scores among the participants across socio-demographic groups.

The **multivariate analysis** involved multiple logistic regressions, and Odds Ratios were used as indicators of the strength of the association. To account for changes in the response of each person for baseline, 3 months, and 6 months', the mixed-effect logistic regression model was used. This measured use, knowledge, and attitude in the intervention and control groups. The analysis using mixed-effect logistic regression model was a powerful approach to compare the variability in intrapersonal outcomes among intervention and control groups (Schäfer, 2021). The mixed effect modelling of the multivariable linear regression was generated to examine the

relationship between socio-demographic variables, educational intervention, and the outcome variables (knowledge, attitude, and use). The effect of the intervention was as assessed using adjusted Odds Ratios. The LR test vs. logistic model was used to assess the fitness of the data. Adjusted odds ratios and their 95% confidence intervals were used to describe the strength of association in all procedures.

The major outcome was the utilization of emergency contraception among the study participants at the 24th-week follow-up, comparing the intervention and control groups after the period of intervention. Other assessed outcomes included knowledge of ECs and attitude towards EC use. The changes were reported as being attributed to the intervention if the p-value was 0.05 at the 95% CI. The Difference in Difference analysis model was used to measure the variation of outcome (knowledge, attitude, confidence, and practice) among the service providers before and after the intervention.

3.11.2 Analysis of qualitative data

The recorded data from interviews were transcribed from audio to text format. The transcribed data were analysed using NVivo 11 software, which is used to generate node structure that suits the thematic analysis (Attride-Stirling, 2001). Thematic analysis was used to analyze and present findings into basic themes, organizing themes and global themes. The process of thematic analysis (profiling, coding, thematic framework, and thematic network of results) was generated.

For the coding process, the uploading of transcripts into ATLAS-ti was done, and the data were thematically analysed into three levels of themes. Also, uploaded transcripts were coded both inductively and deductively into basic themes.

Thematic analysis was used to identify reinforcing factors such as assertiveness in resisting peer influence and support received from VHTs to seek and access EC when required among adolescents. The insights, opinions, and perceptions of adolescents, key opinion leaders, and the village health team were qualitatively analysed. Data were analysed using codes and themes related to the subject matter. The data was categorized under themes following the procedure by Atienzo et al (2009).

Table 5: Themes, subthemes, and relevant codes

Themes	Subthemes	Codes
Knowledge and attitude of participants	Source of information	Peers Service providers VHTs Media
	Attitude towards EC use among adolescents.	Cultural and religiosity Fear and stigma Perceived side effects of ECs
Barriers and challenges to use of ECs among adolescent	Service provision barriers	ECs inaccessibility EC unaffordability Distance to the facilities Out of stock of ECs Lack of knowledge among Service providers Poor attitude among service providers
	Social cultural challenges	Religious influence Promiscuity among adolescents
	Other factors	Confidentiality Privacy Perceived quality of care from service providers
Community support for adolescents to access and use ECs	VHT support	VHT counselling VHTs referral and follow up
Suggestions improve EC access and use among adolescents	Adolescent engagement in EC services	Peer to peer approach Training and awareness programs Counselling and follow up sessions. Change of attitude among the community
	Suggestions to improve EC services.	Training of both private and public service providers Establish, maintain, and engage adolescent clubs for EC services. Involve stakeholders right from the grassroots level to the top level of government for inclusion of ECs in service delivery. Obtain support from government and other donor programs.

CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

This chapter reports on the results of the study. Univariate, bivariate, and multivariable logistic regression models were fitted to determine the association between the predictor and outcome variables.

4.1.1 Characteristics of the adolescent respondents

A total of 349 female adolescents were interviewed out of a sample size of 356 adolescents recruited for the study. Only 2% of the respondents declined to be interviewed. The demographic characteristics of the study population are presented in Table 6². Over half (55.0%) of adolescents in this study were aged 14–17 years. The majority (65.3%) had attained the primary level of education. The vast majority (82.5%) did not have any source of income. Almost a third (32.4%) of the adolescents were married, and nearly half (48.1%) had their menarche before the age of 14 years. The majority (72.2%; 95% CI: 67.3%–76.7%) of adolescents have had a sexual activity.

² all percentages may not add up to 100 due to rounding.

Table 6: Socio-demographic characteristic of the adolescents

Measured variables	Variable categories	Total (N=349)	Percent (%)
District	<i>Kamwenge</i>	173	49.6
	<i>Bundibugyo</i>	176	50.4
Study area	<i>Kamwenge TC</i>	85	24.4
	<i>Nkoma SC</i>	88	25.2
	<i>Bundibugyo TC</i>	82	23.5
	<i>Ngamba SC</i>	94	26.9
Age (years)	<i>14-17</i>	192	55
	<i>18-19</i>	157	45
Level of education	<i>No formal education</i>	43	12.3
	<i>Primary</i>	228	65.3
	<i>Secondary</i>	76	21.8
	<i>Post-Secondary</i>	2	0.6
Occupation	<i>None</i>	288	82.5
	<i>Self employed</i>	49	14.0
	<i>On skills training</i>	12	3.5
Marital status	<i>Married</i>	113	32.4
	<i>Not married</i>	236	67.6
Residence	<i>Rural</i>	185	53
	<i>Urban</i>	164	47
Age at menarche (years)	<i>Below 14</i>	168	48.1
	<i>14-17</i>	174	49.9
	<i>Above 17</i>	2	0.6
	<i>#Not Applicable</i>	5	1.4
Ethnicity	<i>Munyankore</i>	96	27.5
	<i>Muganda</i>	11	3.2
	<i>Mutooro</i>	20	5.7
	<i>Mukonjo</i>	96	27.5
	<i>Mubwitsi</i>	68	19.5
	<i>Mufumbira</i>	23	6.6
	<i>Others</i>	35	10
Religion	<i>Catholic</i>	106	30.4
	<i>Anglican</i>	113	32.4
	<i>Muslim</i>	34	9.7
	<i>Pentecostal</i>	53	15.2
	<i>Traditionalist</i>	2	0.6
	<i>Others</i>	41	11.7
Ever had sex	<i>Yes</i>	252	72.2
	<i>No</i>	97	27.8

Adolescents who had not experienced their menarche

4.2 Prevalence of EC use and demographic factors among sexually active adolescents

4.2.1 Use of emergency contraception and demographics of sexually active adolescents

Out of 252 (72.2%) sexually active adolescents, only 14.3% (95% CI: 10.5%–19.2%) had used ECs. Of those aged 18–19 years, only 16.7% had used ECs. Only 13.3% of married adolescents and 15.1% of unmarried adolescents had used ECs. More than half (53.2%) of sexually active adolescents were rural residents, out of which only 11.9% had ever used ECs, compared to 16.9% among the sexually active adolescents in urban areas (Table 7 below).

Table 7: Demographic characteristics of sexually active adolescents by EC use

Measured variables	EC USE		Total (=252)
	No (n=216) n (%)	*Yes (n=36) n (%)	
Age (Years)			
14-17	106 (83.3)	14 (11.7)	120 (47.6)
18-19	110 (88.3)	22 (16.7)	132 (52.4)
Level of education			
None	23 (88.5)	3 (11.5)	26 (10.3)
Primary	141 (88.1)	19 (11.9)	160 (63.5)
Secondary	51 (78.5)	14 (21.5)	65 (25.8)
Post Secondary	1 (100)	0 (0.0)	1 (100)
Marital status			
Married	98 (86.7)	15 (13.3)	113 (44.8)
Not married	118 (84.9)	21 (15.1)	139 (55.2)
Residence			
Rural	118 (88.1)	16 (11.9)	134 (53.2)
Urban	98 (83.1)	20 (16.9)	118 (46.8)
Age at menarche (Years)			
Below 14	111 (89.5)	13 (10.5)	124 (49.2)
14-17	100 (81.3)	23 (18.7)	123 (48.8)
Above 17	2 (100)	0 (0.0)	2 (0.7)
**Not Applicable	3 (100)	0 (0.0)	3 (1.2)
Ethnicity			
Munyankore	51 (83.6)	10 (16.4)	61 (24.2)
Muganda	2 (50.0)	2 (50.0)	4 (1.6)
Mutooro	11 (73.3)	4 (26.7)	15 (6.0)
Mukonjo	64 (85.3)	11 (14.7)	75 (29.8)
Mubwitsi	56 (91.8)	5 (8.2)	61 (24.2)

<i>Mufumbira</i>	10 (83.3)	2 (16.7)	12 (4.8)
<i>Others</i>	22 (91.7)	2 (8.3)	24 (9.5)
Religion			
<i>Catholic</i>	66 (88.0)	9 (12.0)	75 (29.8)
<i>Protestant</i>	67 (84.8)	12 (15.2)	79 (31.3)
<i>Muslim</i>	21 (80.8)	5 (19.2)	26 (10.3)
<i>Pentecostal</i>	29 (82.9)	6 (17.1)	35 (13.9)
<i>Others</i>	33 (89.2)	4 (10.8)	37 (14.)

* The adolescents who were sexually active and had used ECs,
adolescents who had not experienced their menarche

**

4.2.2 Emergency contraception use and frequency of sexual activity among sexually active adolescents

Results in Table 8 below indicated that 15.5% of the adolescents who initiated sex between 14 and 17 years old had used ECs. Of those who had engaged in sex in the past 2 months and 12 months, only 13.7% and 15% had used ECs, respectively. Regarding the number of sexual partners, only 20% of those with two sexual partners and 12.5% of those who had more than two partners had used ECs, respectively.

Table 8: Emergency contraception use among sexually active adolescents

Measured variables	Category	EC USE		Total (N=252)
		No (n=216) n (%)	Yes(n=36) n (%)	
Age at first sex (Years)	<i>Below 14</i>	67 (89.3)	8 (10.7)	75 (29.8)
	<i>14-17</i>	131 (84.5)	24 (15.5)	155 (61.5)
	<i>18-19</i>	16 (80)	4 (20.0)	20 (7.9)
	<i>Not responded</i>	2 (100)	0 (0.0)	2 (0.8)
Sex in the past 2 months	<i>No</i>	52 (83.9)	10 (16.1)	62 (24.6)
	<i>Yes</i>	164 (86.3)	26 (13.7)	190 (75.4)
Sex in the past 12 months	<i>No</i>	12 (100)	0 (0.0)	12 (4.8)
	<i>Yes</i>	204 (85.0)	36 (15.0)	240 (95.2)
Number of sex partners	<i>One</i>	116 (88.6)	15 (11.5)	131 (52.0)
	<i>Two</i>	64 (80.0)	16 (20.0)	80 (31.7)
	<i>More than two</i>	35 (87.5)	5 (12.5)	40 (15.9)
	<i>Not responded</i>	1 (100)	0 (0.0)	1 (0.4)

4.1.3 The frequency of emergency contraception use among sexually active adolescents

The findings of the study indicated (Table 9) that almost half (47.2%) of those who had ever used ECs were between 14 and 17 years of age, and the majority (41.7%) had used it more than twice. A majority (61%) of the adolescents in this study indicated that they would not like to use ECs. However, almost half (40.9%) of sexually active adolescents indicated that they do not use any method of family planning and only 67.1% stopped using the modern family planning method.

Table 9: The frequency of taking ECs among those who used ECs.

Measured Variable	Responses	Frequency (N)	Percentage (%)
Age at first use (Years)	<i>Below 14</i>	4	11.1
	<i>14-17</i>	17	47.2
	<i>18-19</i>	12	33.3
	<i>Not responded</i>	3	8.3
Times of using ECs	<i>Once</i>	12	33.3
	<i>Twice</i>	3	8.3
	<i>More than twice</i>	15	41.7
	<i>Not responded</i>	6	16.7
Still using ECs	<i>No</i>	22	61.1
	<i>Yes</i>	14	38.9
© Alternative Family Planning methods ever used	<i>None</i>	103	40.9
	<i>Pill</i>	30	11.9
	<i>Depo provera</i>	67	26.6
	<i>IUD</i>	1	0.4
	<i>Condoms</i>	43	17.1
	<i>Others</i>	8	3.2
Still using any modern method of Family Planning	<i>Yes</i>	47	32.9
	<i>No</i>	102	67.1

© The denominator is the total number of all the sexually active adolescents.

4.2.4 Knowledge about emergency contraception among adolescents

Most adolescents in this study (85.1%; 95% CI: 81.0%–88.5%) were not knowledgeable about ECs. Only 52/349 (14.9%; 95% CI: 11.5%–19.0%) were knowledgeable about ECs (Table 10)

4.2.4.1 Bivariate analysis of adolescent demographic characteristics associated with knowledge about ECs.

At the bivariate level, age, level of education, occupation, marital status, sexual encounter status, and ever-used ECs status were significantly associated with knowledge about ECs. Only 10.4% (95% CI: 6.8%–15.6%) of 14- to 17-year-olds were knowledgeable. An estimated 12.3% (95% CI: 8.6%–17.2%) and 26.9% (95% CI: 18.2%–37.3%) of adolescents who had completed the primary and secondary levels were knowledgeable about emergency contraception. Only 12.5% (95% CI: 1.9%–16.9%) of unemployed adolescents were knowledgeable compared to the self-employed (28.6%; 95% CI: 17.7%–42.7%; $p < 0.05$). A few married adolescents (21.2%, 95% CI: 14.6%–29.8%) and 11.9% (95% CI: 8.3%–16.7%) were knowledgeable. Only 20.2% (95% CI: 15.7%–25.7%) of the adolescents who had sexual encounters were knowledgeable. The majority (83.3%; 95% CI: 67.5%–92.3%; $p < 0.001$) of the adolescents who had used ECs were found to be knowledgeable about ECs compared to those who had never used them (7.0%; 95% CI: 4.7%–10.5%) (Table 10).



Table 10: Bivariate analysis of adolescent demographic characteristics and knowledge about ECs

Measured variable	Sub variables	Respondents (N=349) (%)	Knowledge levels				Chi square	p-value
			Not knowledgeable (N= 297)	% (CI)	Knowledgeable (N= 52)	% (CI)		
Age (years)	14-17	192 (55.0)	172	89.6 (84.4-93.2)	20	10.4 (6.8-15.6)	6.765	0.009**
	18-19	157 (45.0)	125	79.6 (72.6-85.2)	32	20.4 (14.8-27.4)		
Level of Education	None	43 (12.3)	40	93.0 (80.4-97.7)	3	7.0 (2.3-19.6)	12.255	0.004 ^e
	Primary	228 (65.3)	200	87.7 (82.8-91.4)	28	12.3 (8.6-17.2)		
	*Secondary	78 (22.3)	57	73.1 (62.2-81.8)	21	26.9 (18.2-37.3)		
Residence	Rural	185 (53.0)	161	87.0 (81.4-91.2)	24	13.0 (8.8-18.6)	1.1526	0.283
	Urban	164 (47.0)	136	82.9 (76.4-88.0)	28	17.1 (12.0-23.6)		
Occupation	None	288 (82.5)	252	87.5 (83.1-90.9)	36	12.5 (1.9-16.9)		0.016 ^e
	*Self employed	49 (14.0)	35	71.4 (57.3-82.3)	14	28.6 (17.7-42.7)		
	On skills training	12 (3.4)	10	83.3 (52.1-95.8)	2	16.7 (4.2-47.9)		
Marital status	Married	113 (32.4)	91	78.8 (70.2-85.4)	24	21.2 (14.6-29.8)	5.2961	0.021
	Not married	236 (67.6)	206	88.1 (83.3-91.7)	28	11.9 (8.3-16.7)		
Age at menarche (years)	Below 14	168 (48.1)	144	85.7 (79.5-90.3)	24	14.3 (9.7-20.5)	1.0668	0.587
	*14-17	176 (50.4)	148	84.1 (77.9-88.8)	28	15.9 (11.2-22.1)		
	**Not Applicable	5 (1.4)	5	100 (0)	0	0		
Ethnicity	Munyankore	96 (27.5)	84	87.5 (79.2-92.8)	12	12.5 (7.2-20.8)	0.557	0.557
	Muganda	11 (3.2)	9	81.8 (49.2-95.4)	2	18.2 (4.6-50.8)		
	Mutooro	20 (5.7)	15	75 (52.1-89.2)	5	25.0 (10.8-47.9)		
	Mukonjo	96 (27.5)	80	83.3 (74.5-89.5)	16	16.7 (10.5-25.5)		
	Mubwitsi	68 (19.5)	58	85.3 (74.7-91.9)	10	14.7 (8.1-25.3)		
	Mufumbira	23 (6.6)	22	95.7 (74.7-99.4)	1	4.3 (0.6-25.3)		
	Others	35 (10.0)	29	82.9 (66.7-92.1)	6	17.1 (7.9-33.3)		
Religion	Catholic	106 (30.4)	93	87.7 (80.0-92.8)	13	12.3 (7.2-20.0)	1.312	0.859
	Protestant	113 (32.4)	93	82.3 (74.1-88.3)	20	17.7 (11.7-25.9)		
	Muslim	34 (9.7)	29	85.3 (69.1-93.8)	5	14.7 (6.2-30.9)		
	Pentecostal	53 (15.2)	45	84.9 (72.6-92.3)	8	15.1 (7.7-27.4)		
	*Others	43(12.3)	37	86.0 (72.2-93.6)	6	14.0 (6.4-27.8)		
Ever had sex	No	97 (27.8)	96	98.9 (93.0-99.8)	1	10.3 (1.4-69.9)		0.0001 ^e
	Yes	252 (72.2)	201	79.8 (74.3-84.3)	51	20.2 (15.7-25.7)		
Ever used ECs	No	313 (89.7)	291	92.9 (89.5-95.3)	22	7.0 (4.7-10.5)	148.2565	0.0001
	Yes	36 (10.3)	6	16.7 (7.7-32.5)	30	83.3 (67.5-92.3)		

[^] There were few participants who were traditionalists (2), had attained post-secondary (2), civil servants (3) and had their menarche above 17 (2) were merged to the above sub-groups.

^{^^} Not applicable means that the teens have not menstruated.

^e -Fishers' exact p-value.

* P-value <0.05, ** P-value <0.001

4.2.4.2 Multivariable regression analysis of factors associated with adolescents' knowledge about ECs.

Table 11 presents the results of the logistic regression analyses on the predictors of knowledge about ECs. In a crude logistic regression analysis, the adolescent's age, level of education, occupation, marital status, sexual activity, and use of ECS were all significantly associated with knowledge ($p < 0.05$). An 18–19-year-old adolescent had twice the odds of being knowledgeable as compared to a 14–17-year-old ($COR = 2.20$, 95% CI: 1.20–4.03; $p = 0.01$). Adolescents who had completed secondary education had almost five times the odds of being knowledgeable compared to those with no level of education ($COR = 4.91$, 95% CI: 1.37–17.59; $p < 0.05$). In the adjusted logistic regression analysis, previous EC use was significantly associated with knowledge ($p < 0.05$). An adolescent who has ever used ECs had 47 times the odds of being knowledgeable compared to one who has never used them ($AOR = 46.89$; 95% CI: 16.72–131.51; $p < 0.001$).

Table 11: Multivariable logistic regression of factors associated with adolescent knowledge about ECs (N=349)

Measured variable	Sub variables	COR (95% CI)	p-value	AOR (95% CI)	p-value
Age (years)	14-17	1 (ref)		1 (ref)	
	18-19	2.202 (1.203-4.029)	0.010*	1.283 (0.540 - 3.045)	0.572
Level of education	None	1(ref)		1 (ref)	
	Primary	1.867 (0.541-6.438)	0.323	2.147 (0.406 – 11.368)	0.369
	[^] Secondary	4.912 (1.371-17.588)	0.014*	3.973 (0.714 - 22.097)	0.115
Occupation	None	1 Ref)		1 (ref)	
	[^] Self employed	2.800 (1.375 - 5.703)	0.005**	1.665 (0.620 - 4.467)	0.312
	On skills training	1.400 (0.295 - 6.648)	0.672	0.863 (0.097 - 7.654)	0.894
Marital status	Not married	1 (ref)		1 (ref)	
	Married	2.003 (1.100 - 3.647)	0.023*	1.339 (0.575 – 3.121)	0.498
Ever had sex	No	1 (ref)		1(ref)	
	Yes	24.358 (3.316 - 178.902)	0.002**	7.044 (0.879 – 56.437)	0.066
Ever used ECs	No	1 (ref)		1 (ref)	
	Yes	66.136 (24.876 - 175.831)	0.0001***	46.898 (16.724 -131.514)	0.0001***

[^]There were negligible number participants who were traditionalists (2), had attained post-secondary (2), civil servants (3) were merged with the above sub-groups.

* $p < 0.05$.

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

4.2.5 Attitude of adolescents towards use of emergency contraception

The majority (78.8%; 95% CI: 74.2%-82.8%) of the adolescents had a negative attitude towards EC use, while only 21.2% (95% CI: 17.2%-25.8%) had a positive attitude towards EC use (table 12).

4.2.5.1 Bivariate analysis of association between adolescents' demographic characteristics and attitude towards ECs

Marital status and having a history of sexual encounters were significantly associated with adolescents' attitude to EC in bivariate analysis ($p < 0.05$). Less than half (31.0%; 95% CI: 23.1%–40.1%; $p < 0.01$) of married adolescents and 16.5% of unmarried adolescents had a positive attitude towards ECs. Only 25% (95% CI: 20.0%–30.7%; $p < 0.01$) of those who had ever had sex and 11.3% of those who had no history of sexual encounters had a positive attitude towards EC use (Table 12 below).

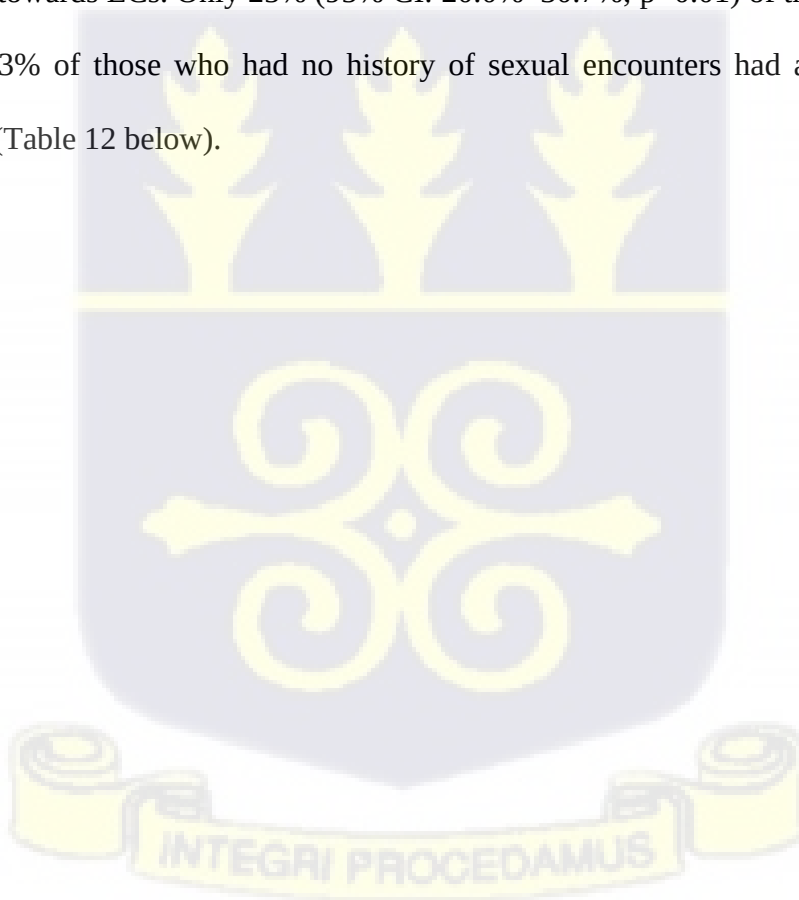


Table 12: Bivariate analysis of association between adolescent demographic characteristics and attitude towards ECs

Measured variable	Category	Respondents (n=349)	Adolescents' attitude				Chi square	p-value
			Negative (n=275)		Positive (n= 74)			
Age (years)	14-17	192 (55.0)	153	79.7 (73.4-84.8)	39	20.3 (15.2-26.6)	0.2028	0.2028
	18-19	157 (45.0)	122	77.7 (70.5-83.6)	35	22.3 (16.4-29.5)		
Level of education	None	43 (12.3)	35	81.4 (66.9-90.4)	8	18.6 (09.6-33.1)	1.7038	0.427
	Primary	228 (65.3)	175	76.8 (70.8-81.8)	53	23.2 (18.2 -29.2)		
	*Secondary	78 (22.3)	65	83.3 (73.3-90.1)	13	16.7 (09.9-26.7)		
Marital status	Married	113 (32.4)	78	69.0 (59.9-76.9)	35	31.0 (23.1-40.1)	9.547	0.002*
	Not married	236 (67.6)	197	83.5 (78.2-87.7)	39	16.5 (12.3-21.8)		
Residence	Rural	185 (53.0)	146	78.9 (72.4-84.2)	39	21.1 (15.8-27.6)	0.0035	0.953
	Urban	164 (47.0)	129	78.7 (71.7-84.3)	35	21.3 (15.7-28.3)		
Occupation	None	288 (82.5)	230	79.9 (74.8-84.1)	58	20.1 (15.9-25.2)	0.337 ^e	
	*Self employed	49 (14.0)	35	71.4 (57.3-82.3)	14	28.6 (17.7-42.7)		
	On skills training	12 (3.4)	10	83.3 (52.1-95.8)	2	16.7 (04.2-47.9)		
Age at menarche (years)	Below 14	168 (48.1)	133	79.2 (72.3-84.7)	35	20.8 (15.3-27.7)	1.4554	0.483
	*14-17	176 (50.4)	137	77.8 (71.1-83.4)	39	22.2 (16.6-28.9)		
	**Not Applicable	5 (1.4)	5	100 (0)	0	1		
Ethnicity	Munyankore	96 (27.5)	79	82.3 (73.3-88.7)	17	17.7 (11.3-26.7)	0.598 ^e	
	Muganda	11 (3.2)	9	81.8 (49.2-95.4)	2	18.2 (04.6-50.8)		
	Mutooro	20 (5.7)	16	80.0 (57.1-92.3)	4	20.0 (07.7-42.9)		
	Mukonjo	96 (27.5)	72	75.0 (65.4-82.7)	24	25.0 (17.3-34.6)		
	Mubwitsi	68 (19.5)	51	75.0 (63.4-83.9)	17	25.0 (16.1-36.6)		
	Mufumbira	23 (6.6)	17	73.9 (52.7-87.8)	6	26.1 (12.2-47.3)		
	Others	35 (10.0)	31	88.6 (73.2-95.7)	4	11.4 (04.3-26.8)		
Religion	Catholic	106 (30.4)	86	81.1 (72.5-87.5)	20	18.9 (12.5-27.5)	2.5268	0.64
	Protestant	113 (32.4)	85	75.2 (66.4-82.3)	28	24.8 (17.7-33.6)		
	Muslim	34 (9.7)	28	82.4 (65.8-91.9)	6	17.6 (08.1-34.2)		
	Pentecostal	53 (15.2)	44	83.0 (70.4-90.9)	9	17.0 (09.1-29.6)		
	Others	43(12.3)	32	74.4 (59.4-85.3)	11	25.6 (14.7-40.6)		
Ever had sex	No	97 (27.8)	86	88.7 (80.6-93.6)	11	11.3 (6.4-19.4)	7.8221	0.005*
	Yes	252 (72.2)	189	75.0 (69.3-79.9)	63	25.0 (20.0-30.7)		
Ever used ECs	No	313 (89.7)	249	79.6 (74.7-83.7)	64	20.4 (16.3-25.3)	1.0384	0.308
	Yes	36 (10.3)	26	72.2 (55.6-84.4)	10	27.8 (15.6-44.4)		

^a There were negligible number participants who were traditionalists (2), had attained post-secondary (2), civil servants (3) and had their menarche above 17 (2) were merged to the above sub-groups.

^e - Fishers' exact p-value, *p<0.01

4.3 Enabling factors associated with EC use among adolescents.

4.3.1 Demographic characteristics of service providers

Almost half (45.3%) of the service providers were between 25-34 years. The majority had attained a certificate of nursing (47.7%). Slightly more than half (51.2%) of these respondents had been in practice for more than three years. About two thirds (73.3%) were working in drug shops. Also, more than half (60.5%) were from the urban setting.

Table 13: Demographic characteristics of the service providers

Measured variables	Category	Total (n=86)	Percent (%)
Age (Years)	<i>Below 25</i>	22	25.6
	<i>25-34</i>	39	45.3
	<i>35-44</i>	26	30.2
Gender	<i>Male</i>	45	52.3
	<i>Female</i>	41	47.7
Qualification	<i>Enrolled Nurse</i>	41	47.7
	<i>Enrolled Midwife</i>	16	18.6
	<i>Registered Nurse/Midwife</i>	14	16.3
	<i>Clinical Officer</i>	8	9.3
	<i>Others</i>	7	8.1
Years of Practice	<i>Below one</i>	12	14
	<i>one-three</i>	30	34.9
	<i>Above three</i>	44	51.2
Religion	<i>Catholic</i>	18	20.9
	<i>Protestant</i>	40	46.5
	<i>Muslim</i>	4	4.7
	<i>Pentecostal</i>	7	8.1
	<i>Others</i>	17	19.8
Type of facility	<i>Government facility</i>	9	10.5
	<i>Pharmacy</i>	14	16.3
	<i>Drugshop</i>	63	73.3
Ethnicity	<i>Mutooro</i>	13	15.1
	<i>Mukonjo</i>	33	38.4
	<i>Munyankore/kiga</i>	26	30.2
	<i>Mubwitsi/Mwamba</i>	14	16.3
Residence	<i>Rural</i>	34	39.5
	<i>Urban</i>	52	60.5

4.3.2 Service providers' knowledge about providing ECs to the adolescents

About seventy-three percent (73.3%; 95% CI: 62.8%–81.6%) of service providers interviewed in this study were not knowledgeable, while only 26.7% of the service providers were knowledgeable about ECs. Younger service providers less than 25 years were more knowledgeable about EC (63.6%; 95% CI: 42.0%–80.9%) as compared to those 25–34 years (13.2%; 95% CI: 05.5%–28.2%) and ≥ 35 years (15.4%; 95% CI: 05.4%–34.9%; $p < 0.001$). Further, service providers with one year of experience were more knowledgeable (66.7%; 95% CI: 37.2%–87.1%) as compared to those with one to three years of experience (23.3%; 95% CI: 11.4%–41.8%) and $>$ three years of experience (18.2%; 95% CI: 09.3%–32.6%; $p = 0.006$). It was observed that all Muslim service providers were knowledgeable about EC (table 14).

Table 14: Bivariate analysis of service providers' demographic characteristics and knowledge about ECs

Measured variables	Total (N=86)	Providers' Knowledge				Chi square	p- value
		Not Knowledgeable (n=63)	% (CI)	Knowledgeable (n=23)	% (CI)		
Age (Years)							
Below 25	22 (25.6)	8	36.4 (19.1-58.0)	14	63.6 (42.0-80.9)		0.001 ^e
25-34	38 (44.2)	33	86.8 (71.8-94.5)	5	13.2 (05.5-28.2)		
35 and above	26 (30.2)	22	84.6 (65.1-94.2)	4	13.2 (05.5-28.2)		
Gender							
Male	45 (52.3)	30	66.7 (51.6-78.9)	15	33.3 (21.1-48.4)	2.0918	0.148
Female	41 (47.7)	33	80.5 (65.3-90.0)	8	19.5 (10.0-34.7)		
Qualification							
Enrolled Nurse	41 (47.7)	27	65.9 (50.0-78.7)	14	34.1 (21.2-50.0)		0.443
Enrolled Midwife	16 (18.6)	14	87.5 (60.9-96.9)	2	12.5 (3.1-39.1)		
Registered Nurse/Midwife	14 (16.3)	11	78.6 (50.1-93.0)	3	21.4 (07.0-50.0)		
Clinical Officer	8 (9.3)	5	62.5 (28.1-87.7)	3	37.5 (12.3-71.9)		
Others	7 (8.1)	6	85.7 (41.2-98.1)	1	14.3 (01.9-58.8)		
Ethnicity							
Mutooro	13 (15.1)	9	69.2 (40.5-88.1)	4	30.8 (11.9-59.5)		0.891
Mukonjo	33 (38.4)	25	75.8 (58.2-87.5)	8	24.2 (12.5-41.8)		
Munyankore/kiga	26 (30.2)	18	69.2 (49.2-84.0)	8	30.8 (16.0-50.8)		
Mubwitsi/Mwamba	14 (16.3)	11	78.6 (50.1-93.0)	3	21.4 (7.0-49.9)		
Years of Practice							
Below one	12 (14.0)	4	33.3 (12.9-62.8)	8	66.7 (37.2-87.1)		0.006 ^e
one - three	30 (34.9)	23	76.7 (58.2-88.6)	7	23.3 (11.4-41.8)		
Above three	44 (51.2)	36	81.8 (67.4-90.7)	8	18.2 (09.3-32.6)		

Religion							
Catholic	18 (20.9)	14	77.8 (53.1-91.5)	4	22.2 (08.5-46.9)	0.025 ^e	
Protestant	40 (46.5)	32	80.0 (64.6-89.8)	8	20 (10.2-35.4)		
Muslim	4 (4.7)	0	0(-)	4	100(-)		
Pentecostal	7 (8.1)	5	71.4 (32.1-93.0)	5	28.6 (07.0-67.9)		
Others	17 (19.8)	12	70.6 (45.4-87.4)	6	35.3 (12.6-54.6)		
Type of facility							
Government facility	9 (10.5)	6	66.7 (32.9-89.1)	3	33.3 (10.9-67.10)	0.785	
Pharmacy	14 (16.3)	10	71.4 (43.5-89.0)	4	28.6 (11.0-56.5)		
Drugshop	63 (73.3)	47	74.6 (62.3-83.9)	16	25.4 (16.1-37.7)		
Residence							
Rural	34 (39.5)	27	79.4 (62.4-90.0)	7	20.6 (10.0-37.6)	1.0877	0.297
Urban	52 (60.5)	36	69.2 (55.3-80.4)	16	30.8 (19.6-44.7)		

^e - Fishers' exact p -value < 0.05

4.3.3 Service providers' attitude towards providing EC to adolescents.

The majority (86.0%; 95% CI: 76.9%–92.0%) of service providers had a negative attitude towards providing ECs to adolescents. Only 14 percent had a positive attitude.

Younger service providers below 25 years had good attitude towards providing ECs to adolescents (36.4%; 95% CI: 19.1%–58.0%) than those 25–34 years (2.6%; 95% CI: 0.4%–16.9%), and those >35 years (11.5%; 95% CI: 03.7%–30.7%; $p < 0.01$). Apart from the age of the service provider, other demographic characteristics did not show a significant association with attitudes towards providing ECs to adolescents (Table 15 below).



Table 15: Bivariate analysis on the association between service providers' demographic characteristics and their attitude towards adolescents' EC provision to adolescents.

Measured variables	Total (n=86)	Providers' attitude				Chi square	p- value
		Negative (n=74)	% (CI)	Positive (n=12)	% (CI)		
Age (Years)							
<i>Below 25</i>	22 (25.6)	14	63.6 (42.0-80.9)	8	36.4 (19.1-58.0)		0.002 ^e
<i>25-34</i>	38 (45.3)	37	97.4 (83.1-99.6)	1	2.6 (0.40 -16.9)		
<i>35-44</i>	26 (30.2)	23	88.5 (69.3-96.3)	3	11.5 (03.7-30.7)		
Gender							
<i>Male</i>	45 (52.3)	39	86.7 (73.1-94.0)	6	13.3 (06.0-27.0)	0.0302	0.862
<i>Female</i>	41 (47.7)	35	85.4 (70.8-93.4)	6	14.6 (06.6-29.2)		
Qualification							
<i>Enrolled Nurse</i>	41 (47.7)	36	87.8 (73.6-94.9)	5	12.2 (05.1-26.4)		0.326 ^e
<i>Enrolled Midwife</i>	16 (18.6)	13	81.3 (54.8-93.9)	3	18.8 (06.1-45.2)		
<i>Registered Nurse/Midwife</i>	14 (16.3)	10	71.4 (43.5-89.0)	4	28.6 (11.0-56.5)		
<i>Clinical Officer</i>	8 (9.3)	8	100 (-)	0	0 (-)		
<i>Others</i>	7 (8.1)	7	100(-)	0	0 (-)		
Ethnicity							
<i>Mutooro</i>	13 (15.1)	12	92.3 (60.2-98.9)	1	7.7 (01.0-39.8)		0.524 ^e
<i>Mukonjo</i>	33 (38.4)	26	78.8 (61.4-89.6)	7	21.2 (10.4-38.6)		
<i>Munyankore/kiga</i>	26 (30.2)	24	92.3 (73.5-98.1)	2	7.7 (01.9-26.5)		
<i>Mubwitsi/Mwamba</i>	14 (16.3)	12	85.7 (56.8-96.5)	2	14.3 (03.5-43.2)		
Years of Practice							
<i>Below one</i>	12 (14.0)	8	66.7 (37.2-87.1)	4	33.3 (12.9-62.8)		0.122 ^e
<i>one-three</i>	30 (34.9)	26	86.7 (69.1-95.0)	4	13.3 (05.0-30.9)		
<i>Above three</i>	44 (51.2)	40	90.9 (77.9-96.6)	4	9.1 (03.4-22.1)		
Religion							
<i>Catholic</i>	18 (20.9)	15	83.3 (58.7-94.6)	3	16.7 (5.4-41.3)		0.728 ^e
<i>Protestant</i>	40 (46.5)	34	85.0 (70.1-93.2)	6	15.0 (6.8-29.9)		
<i>Muslim</i>	4 (4.7)	3	75.0 (23.2-96.8)	1	25.0 (3.2-76.8)		
<i>Pentecostal</i>	7 (8.1)	6	85.7 (41.2-98.1)	1	14.3 (1.9-58.8)		
<i>Others</i>	17 (19.8)	16	94.1 (67.3-99.2)	1	5.9 (0.8-32.7)		
Type of facility							
<i>Government facility</i>	9 (10.5)	8	88.9 (49.3-98.5)	1	11.1 (1.5-50.7)		0.768 ^e
<i>Pharmacy</i>	14 (16.3)	11	78.6 (50.1-93.0)	3	21.4 (7.0-49.9)		
<i>Drugshop</i>	63 (73.3)	55	87.3 (76.4-93.6)	8	12.7 (6.4-23.6)		
Residence							
<i>Rural</i>	34 (39.5)	28	82.4 (65.6-91.9)	6	17.6 (8.1-34.4)	0.6389	0.424
<i>Urban</i>	52 (60.5)	46	88.5(76.4-94.8)	6	11.5 (5.2-23.6)		

^e - Fishers' exact p-value

4.3.4 Service providers' confidence in providing ECs to adolescents.

The results indicated that the majority (74.4%; 95% CI: 64.0%–82.6%) of service providers were not confident about providing ECs to adolescents. Only 25.6% of the service providers were confident about providing ECs to adolescents. Table 16 presents data on service provider's confidence in providing ECs to adolescents.

Younger service providers below 25 years were more confident with providing ECs to adolescents (77.3%, 95% CI: 55.3%–90.3%) than those 25–34 years (10.5%; 95% CI: 04.0%–25.2%) and > 35 years (03.8%; 95% CI: 0.50%–23.3%; $p < 0.001$). Service providers with <1 year of experience were more confident with providing ECs to adolescents (91.7%; 95% CI: 58.0%–98.9%) than those with one to three years of experience (16.7%; 95% CI: 07.0%–34.6%) and > three years of experience (13.6%; 95% CI: 06.2%–27.4%; $p < 0.05$). It was observed that all Muslim service providers had a positive attitude towards EC use among adolescents ($p < 0.001$) (table 16 below).

Table 16: Bivariate analysis of the association between service providers' demographic characteristics and confidence towards providing ECs to adolescents.

Measured variables	Total (86)	Providers' confidence				Chi square	p- value
		Not confident (n=64)	% (CI)	Confident (n=22)	% (CI)		
Age (Years)							
Below 25	22 (25.6)	5	22.7 (09.7-44.7)	17	77.3 (55.3-90.3)		0.000 ^e
25-34	38 (45.3)	34	89.5 (74.8-96.0)	4	10.5 (04.0-25.2)		
35-44	26 (30.2)	25	96.2 (76.7-99.5)	1	3.8 (0.50-23.3)		
Gender							
Male	45 (52.3)	33	73.3 (58.5-84.3)	12	26.7 (15.7-41.5)	0.0584	0.809
Female	41 (47.7)	31	75.6 (60.1-86.5)	10	24.4 (13.5-39.9)		
Qualification							
Enrolled Nurse	41 (47.7)	29	70.7 (55.0-82.7)	12	29.3 (17.3-45.0)		0.967 ^e
Enrolled Midwife	16 (18.6)	12	75.0 (48.8-90.4)	4	25.0 (09.6-51.2)		
Registered Nurse/Midwife	14 (16.3)	11	78.6 (50.1-93.0)	3	21.4 (07.0-50.0)		
Clinical Officer	8 (9.3)	6	75.0 (37.2-93.8)	2	25.0 (06.2-62.8)		
Others	7 (8.1)	6	85.7 (41.2-98.1)	1	14.3 (01.9-58.8)		

Ethnicity								
Mutooro	13 (15.1)	11	84.6 (54.4-96.2)	2	15.4 (03.8-45.6)	0.196 ^e		
Mukonjo	33 (38.4)	23	69.7 (52.0-83.0)	10	30.3 (17.0-48.0)			
Munyankore/Mukiga	26 (30.2)	17	65.4 (45.4-81.1)	9	34.6 (18.9-54.6)			
Mubwitsi/Mwamba	14 (16.3)	13	92.9 (62.3-99.0)	1	07.1 (0.90-37.7)			
Years of Practice								
Below one	12 (14.0)	1	08.3 (01.1-42.0)	11	91.7 (58.0-98.9)	0.000*		
one – three	30 (34.9)	25	83.3 (65.4-93.0)	5	16.7 (07.0-34.6)			
Above three	44 (51.2)	38	86.4 (72.6-93.8)	6	13.6 (06.2-27.4)			
Religion								
Catholic	18 (20.9)	16	88.9 (64.3-97.3)	2	11.1 (02.7-35.7)	0.041 ^e		
Protestant	40 (46.5)	32	80.0 (64.6-89.8)	8	20.0 (10.2-35.4)			
Muslim	4 (4.7)	1	25.0 (03.2-76.8)	3	75.0 (23.2-96.8)			
Pentecostal	7 (8.1)	5	71.4 (32.1-93.0)	2	28.6 (07.0-67.9)			
Others	17 (19.8)	10	58.8 (34.9-79.2)	7	41.2 (20.8-65.1)			
Type of facility								
Government facility	9 (10.5)	6	66.7 (32.9-89.1)	3	33.3 (10.9-67.1)	0.428 ^e		
Pharmacy	14 (16.3)	9	64.3 (37.3-84.5)	5	35.7 (15.5-62.7)			
Drug shop	63 (73.3)	49	77.8 (65.7-86.5)	14	22.2 (13.5-34.3)			
Residence								
Rural	34 (39.5)	26	76.5 (59.3-87.9)	8	23.5 (12.1-40.7)	0.1244	0.724	
Urban	52 (60.5)	38	73.1 (59.3-83.5)	14	26.9 (16.5-40.7)			

^e - Fishers' exact p-value

* p-value < 0.05

4.3.5 Service providers' practice of providing ECs to adolescents.

The majority (65.1%; 95% CI: 54.3%–74.5%) of service providers did not have a good practice of providing ECs to adolescents. More than half of the service providers had a bad practice of providing ECs to adolescents. Older service providers between 25 and 34 years (76.3%; 95% CI: 60.1%-83.7%) and those >35 years (76.9%; 95% CI: 56.9%-89.4%) had bad practices for providing ECs to adolescents than those 25 years (31.8%; 95% CI: 15.8%-53.7%; $p < 0.001$).

Further, service providers with less than one year of experience had a good practice of providing ECs to adolescents (75% of them) than those with one to three years of experience (23.3%), and those with more than three years of experience (31.8%) (table 17 below).

Table 17: Bivariate analysis of the association between service providers' demographic characteristics and their practice of providing ECs to adolescents.

Measured variables	Total (N=86)	Providers' Practice				Chi square	p- value
		Bad practice (n=56)		Good practice (n=30)			
			% (CI)		% (CI)		
Age (Years)							
<i>Below 25</i>	22 (25.6)	7	31.8 (15.8-53.7)	15	68.2 (46.3-84.2)	14.433	0.001*
<i>25-34</i>	38 (45.3)	29	76.3 (60.1-87.3)	9	23.7 (12.7-39.9)		
<i>35-44</i>	26 (30.2)	20	76.9 (56.9-89.4)	6	23.1 (10.6-43.1)		
Gender							
<i>Male</i>	45 (52.3)	30	66.7 (51.6-78.9)	15	33.3 (21.1-48.4)	0.0999	0.752
<i>Female</i>	41 (47.7)	26	63.4 (47.6-76.8)	15	36.6 (23.2-52.4)		
Qualification							
<i>Enrolled Nurse</i>	41 (47.7)	28	68.3 (52.5-80.8)	13	31.7 (19.2-47.5)		0.169 ^e
<i>Enrolled Midwife</i>	16 (18.6)	9	56.3 (32.1-77.8)	7	43.7 (22.2-67.9)		
<i>Registered Nurse/Midwife</i>	14 (16.3)	6	42.9 (20.4-68.7)	8	57.1 (31.1-79.6)		
<i>Clinical Officer</i>	8 (9.3)	7	87.5 (45.5-98.3)	1	12.5 (01.7-54.5)		
<i>Others</i>	7 (8.1)	6	85.7 (41.2-98.1)	1	14.3 (01.9-58.8)		
Ethnicity							
<i>Mutooro</i>	13 (15.1)	8	61.5 (34.0-83.3)	5	38.5 (16.7-66.0)		0.608 ^e
<i>Mukonjo</i>	33 (38.4)	22	66.7 (49.0-80.6)	11	33.3 (19.4-51.0)		
<i>Munyankore/kiga</i>	26 (30.2)	15	57.7 (38.2-75.0)	11	42.3 (25.0-61.8)		
<i>Mubwitsi/Mwamba</i>	14 (16.3)	11	78.6 (50.1-93.0)	3	21.4 (07.0-49.9)		
Years of Practice							
<i>Below one</i>	12 (14.0)	3	25.0 (08.1-55.6)	9	75.0 (44.4-91.9)		0.007*
<i>one – three</i>	30 (34.9)	23	76.7 (58.2-88.6)	7	23.3 (11.4-41.8)		
<i>Above three</i>	44 (51.2)	30	68.2 (53.0-80.3)	14	31.8 (19.7-47.0)		
Religion							
<i>Catholic</i>	18 (20.9)	13	72.2 (47.7-88.1)	5	27.8 (11.9-52.3)		0.100
<i>Protestant</i>	40 (46.5)	30	75.0 (59.2-86.1)	10	25.0 (13.9-40.8)		
<i>Muslim</i>	4 (4.7)	1	25.0 (03.2-76.8)	3	75.0 (23.2-96.8)		
<i>Pentecostal</i>	7 (8.1)	3	42.9 (14.1-77.4)	4	57.1 (22.6-85.9)		
<i>Others</i>	17 (19.8)	9	52.9 (30.0-74.7)	8	47.1 (25.3-70.0)		
Type of facility							
<i>Government facility</i>	9 (10.5)	5	55.6 (24.8-82.6)	4	44.4 (17.4-75.2)		0.869
<i>Pharmacy</i>	14 (16.3)	9	64.3 (37.3-84.5)	5	35.7 (15.5-62.7)		
<i>Drug shop</i>	63 (73.3)	42	66.7 (54.0-77.3)	21	33.3 (22.7-46.0)		
Residence							
<i>Rural</i>	34 (39.5)	22	64.7 (47.3-78.9)	12	35.3 (21.1-52.7)	0.0042	0.949
<i>Urban</i>	52 (60.5)	34	65.4 (51.4-77.1)	18	34.6 (22.9-48.6)		

^e - Fishers' exact p-value

* p-value < 0.05

4.3.6 Adolescents' assessment of EC provision by service providers.

Adolescents report on their experiences with EC service providers is presented in table 18. Out of the 36 adolescents who had used ECs during the period of the study, the majority (91.7%) indicated that they never received instructions from service providers on when to take the medicine. Eighty percent (80.6%) said that they never received instructions regarding how to take the EC tablet. Almost all adolescents (91.7%) said they were never encouraged to take ECs. The majority (94.4%) were never encouraged to take ECs when needed. (Table 18).

Table 18: Reported practice of service providers by the adolescents who accessed ECs

Instruction	Category	N (No)	%
Received instruction on when to take the drug	Yes	3	8.3
	No	33	91.7
Received instruction on how to take the drug	Yes	15	41.7
	No	21	58.3
Receive instruction regarding the condition	Yes	7	19.4
	No	29	80.6
Received instructions without getting confused	Yes	20	55.6
	No	16	44.4
SP encouraged adolescents to take ECs	Yes	3	8.3
	No	33	91.7
SP encouraged adolescents to take ECs whenever needed	Yes	2	5.6
	No	34	94.4
Accessed ECs without prescription	Yes	29	80.6
	No	7	19.4

4.3.7 Other enabling factors to EC access among adolescents.

4.3.7.1 Adolescents' responses on the source, distance, and cost of ECs

Almost half (41.7%) of adolescents who used ECs obtained them from a pharmacy, while 30.6% got them from drugstores. As far as distance is concerned, 40.6% of the adolescents who had not used ECs thought that they were accessible from a distance greater than 5 km. However, the majority (55.6%) of those who had used the ECs accessed them within less than 5 kilometers. Concerning the cost, the majority (83.3%) of the EC users indicated that the ECs cost between UGX 5,000 and UGX 10,000. Both the EC users and the non-users said that the cost is high (66.7% and 39%, respectively) (Table 19).

Table 19: Association between adolescents' responses of the source, distance, cost and use of ECs

Measured variable	Participants (n=349)	EC USE		p-value
		No (n=313) n (%)	Yes (n= 36) n (%)	
Source of ECs				
Government hospital	125 (35.8)	121 (38.7)	4 (11.1)	0.0001
Government HC	46 (14.0)	44 (14.1)	2 (5.6)	
Pharmacy	48 (13.8)	33 (10.5)	15 (41.7)	
Drug shop	82 (23.5)	71 (22.7)	11 (30.6)	
All the above	32 (9.2)	28 (8.9)	4 (11.1)	
I don't know	16 (4.6)	16 (5.1)	0 (0.0)	
Distance to the facility				
Less than 1 km	104 (29.8)	84 (26.8)	20 (55.6)	0.002
one – five	94 (26.9)	82 (26.2)	12 (33.3)	
More than five	131 (37.5)	127 (40.6)	4 (11.1)	
Don't know	20 (5.7)	20 (6.4)	0 (0.0)	
*Cost of ECs (UGX)				
Less than 5000	156 (44.7)	151 (48.2)	5 (13.9)	0.0001
5,000-10,000	106 (30.4)	76 (24.3)	30 (83.3)	
Above 10,000	14 (4.0)	13 (4.2)	1 (2.8)	
Don't know	73 (20.9)	73 (23.3)	0 (0.0)	
Perception about cost				
High	146 (41.8)	122 (39.0)	24 (66.7)	0.003
Medium	93 (26.6)	81 (25.9)	11 (30.6)	
Low	33 (9.5)	32 (10.2)	1 (2.8)	
Don't know	77 (22.1)	77 (24.6)	0 (0.0)	

4.3.7.2 Service Provider's responses on the sources of information about EC, its availability and cost, and community linkages

More service providers who had previous training had a positive perception of providing ECS to adolescents (45.5%) when compared to those who had never had training (31.7%). Further, service providers who had ECs always in stock had good perceptions (65%) as compared to those who rarely had EC stocks (35%). Many of the service providers who sold ECs below UGX 5000 had a good perception (43.6%) as compared to those who sold them between UGX 5000

and UGX 10,000. Service providers who had a linkage to the community had better perceptions of providing ECs to adolescents (40.4%) than those who had no community linkage (28.1%).

Table 20: Association between service provider's responses to the sources of information, availability and cost of EC, government support, community linkages AND practice to providing of ECs to the adolescents.

Variable categories	Practice of service providers			p-value
	Total (N=86)	Bad (N=56) n (%)	Good (N = 30) n (%)	
Previous training on ECs				
Yes	22 (25.6)	12 (54.5)	10 (45.5)	0.407
No	63 (73.3)	43 (68.3)	20 (31.7)	
Not responded	1 (1.2)	1 (100)	0 (0.00)	
Source of information				
Workshops/training	16 (18.6)	11 (68.8)	5 (31.2)	0.308
Previous training institutions	34 (39.5)	21 (61.8)	13 (38.2)	
Fellow workmates	32 (37.2)	23 (71.9)	9 (28.1)	
On media	4 (4.7)	1 (25.0)	4 (75.0)	
Availability of stock				
Always	43 (50)	30 (69.8)	13 (30.2)	0.603
Most of the time	22 (25.6)	12 (54.5)	10 (45.5)	
Rarely in stock	20 (23.3)	13 (65.0)	7 (35.0)	
Never in stock	1 (1.2)	1 (100)	0 (0.00)	
Cost of ECs				
Free	9 (10.9)	8 (88.9)	1 (11.1)	0.238
<5000	39 (45.4)	22 (56.4)	17 (43.6)	
5000-10,000	36 (41.9)	24 (66.7)	12 (33.3)	
>10,000	2 (2.3)	2 (100)	0 (0.00)	
Perception of high cost				
Yes	49 (57.0)	33 (67.3)	16 (32.6)	0.116
No	24 (27.9)	12 (50.0)	12 (50.0)	
Don't know	13 (15.1)	11 (84.6)	2 (15.4)	
Presence of guidelines				
Yes	7 (8.1)	7 (100)	0	0.155
No	68 (79.1)	42 (61.8)	26 (38.2)	
Don't know	11 (12.8)	7 (63.6)	4 (36.4)	
Link to the community				
Yes	47 (54.7)	28 (59.6)	19 (40.4)	0.515
No	32 (37.2)	23 (71.9)	9 (28.1)	
Don't know	7 (8.1)	5 (71.4)	2 (28.6)	
Government support				
Yes	61 (70.9)	39 (63.9)	22 (36.1)	0.934
No	17 (19.8)	12 (70.6)	5 (29.4)	
Don't know	8 (9.3)	5 (62.5)	3 (37.5)	

4.3.8 Mystery client experience of the quality of EC service provided at the health facilities

Two mystery clients visited a total of 49 health facilities, inclusive of four (4) government facilities, eight (8) pharmacies, and 37 drug shops. They interacted with 25 male and 24 female service providers.

4.3.8.1 Attitude of service providers towards adolescent mystery client

Overall, 97.1% of the health facilities visited did not portray a good attitude towards mystery clients. The mystery clients reported that the quality of EC service received from 87.8% of the service providers was perceived to be bad. The report showed that the majority (97.6%) of SPs greeted the MCs, but only 24.4% offered a seat to the MC. Half (53.7%) were asked what they wanted.

A few MCs were counseled (9.8%) and told how to take the ECs, (14.6%), respectively. Most of the MCs did not wait long to get the EC services (73.2%). About one in every three service providers (34.1%) was not friendly, and the majority (58.5%) did not exhibit confidentiality. About half (41.5%) of the service providers never gave the mystery clients enough time to ask questions and attend to their concerns (Table 21 below).



Table 21: Attitude of service providers towards the adolescent mystery clients

Variable Phrases	Responses	Freq (N)	Percent (%)
SP greeted the adolescent	Yes	40	97.6
	No	1	2.4
SP offered adolescent a seat	Yes	10	24.4
	No	31	75.6
SP asked what the adolescent wanted	Yes	22	53.7
	No	19	46.3
SP asked the adolescent's name	Yes	4	9.8
	No	37	90.2
SP asked the adolescent's age	Yes	1	2.4
	No	40	97.6
Overall reception of the SP	Bad	40	97.6
	Good	1	2.4
SP counseled before giving ECs	Yes	4	9.8
	No	37	90.2
SP told the adolescent the EC dose	Yes	5	12.2
	No	36	87.8
SP told the adolescent how to take the drug	Yes	6	14.6
	No	35	85.4
SP told the adolescent the contraindications	Yes	1	2.4
	No	40	97.6
SP told the adolescents the reason to take EC	Yes	1	2.4
	No	40	97.6
SP told the adolescent when to return	Yes	2	4.9
	No	39	95.1
The overall attitude of the SPs	Bad	41	97.6
	Good	1	2.44
The adolescent waited for long	Yes	11	26.8
	No	30	73.2
SP was confident	Yes	16	39
	No	25	61
SP asked in a friendly way	Yes	27	65.9
	No	14	34.1
SP was welcoming	Yes	23	56.1
	No	18	43.9
Environment was convenient to provide privacy	Yes	15	36.6
	No	16	63.4
SP's voice portrayed confidentiality	Yes	17	41.5
	No	14	58.5
SP gave adolescent enough time	Yes	24	58.5
	No	17	41.5
Overall perception of quality by mystery clients	Bad	36	87.8
	Good	5	12.2

4.3.9 Qualitative analysis of predisposing, and enabling factors

4.3.9.1 Demographic characteristics of key respondents

A total of 50 participants were qualitatively interviewed for the study. The key informant interviews and focus group discussions were carried out among adolescents who had accessed EC services, key opinion leaders, and village health team members. Half (50%) of these respondents were between 20 and 30 years old. Most of the respondents were female. Almost half (40%) of them had finished the primary level of education, and a similar proportion were community (village health team) members. The males included were district health officers, assistant DHOs in charge of private providers' supervision, VHT coordinators, and other key informants from the ministry (see Table 22 below).

Table 22: Demographic characteristics of key informants

Variable		FGD		IDI		Total (N)
		No (n)	Percent (%)	No (n)	Percent (%)	
Age range (in years)	14-17	6	15.0	0	0.0	6
	18-19	14	35.0	0	0.0	14
	20-30	20	50.0	2	16.7	20
	More than 30	0	0.0	10	83.3	10
Sex	Female	38	100.0	4	33.3	42
	Male	0	0.0	8	66.7	8
Religion	Catholic	15	39.5	3	25.0	18
	Anglican	16	42.1	7	58.3	23
	Muslim	5	13.2	2	16.7	7
	Others	2	5.3	0	0.0	2
Ethnicity	Munyankole/kiga	11	28.9	6	50.0	17
	Mukonjo	16	42.1	4	33.3	20
	Mutooro	6	15.8	0	0.0	6
	Muganda	1	2.6	2	16.7	3
	Others	4	10.2	0	0.0	4
Highest level of education	Illiterate	11	28.9	0	0.0	11
	Primary	19	50.0	1	8.3	20
	Secondary	8	21.1	1	8.3	9
	>Bachelor	0	0.0	10	83.3	10
Profession	None	17	42.5	0	0.0	17
	self employed	3	7.5	0	0.0	3
	Employed	0	0.0	10	83.3	10
	Community worker	20	50.0	2	16.7	20

4.3.9.2 Understanding of ECs among sexually active adolescent

The adolescents had challenges understanding emergency contraception. Most of them had never heard about them, yet they have unmet needs for ECs. A few misinterpreted them as monthly pills. Other adolescents had used ECs but never knew when and how to use them.

“I misinterpreted monthly pills with ECs” AD 38, 15 years, KTC.

“I had forced sex when I was still young, I also understand ECs as monthly pills” AD 95, 18 years, NKSC.

“I am 16-year-old gal working in a saloon and I have used ECs, though I didn’t know when to use and stop them” AD 71, 16 years, KTC.

A 15-year-old married but had had 2 partners said, “I had my first menstruation at 13 years old; I am now 15 years old, but I have had challenges with using family planning. I need help as I don’t want to produce.” AD 170, NKSC.

4.3.9.3 Report of adolescents and mystery clients experience with EC service providers

The adolescent mystery clients who had used ECs identified several issues with service provision. They identified a poor reception by the service providers. Further, the attitude of SPs made it difficult for them to even explain what they wanted. More to this, the MCs reported that the facilities had no privacy, and the SPs did not practice confidentiality wherever they were talking to them. These observations were made at various EC service centres as they observed the service providers' behaviors.

4.3.9.3.1 Reception by Service Provider

It was important to note that most service providers (SP) never greeted the customers.

A mystery client (ID 26) recounts:

“I reached the door; the service provider was watching a movie. I think... She just turned to me without asking what I wanted and returned to watching. When I asked about the family planning

that I can use after nighttime sexual intercourse with my boyfriend, she felt so unbothered and just dropped the pill on the table.” (IDM26 drug shop, KTC).

Other service providers appeared to feel very uneasy. They would dismiss the adolescents even before answering all their questions.

“As soon as I entered, she stood and greeted me. Then she asked me what I wanted, and when I told him that I had practiced unprotected sex, immediately she felt uncomfortable and said that they do not offer such services at her facility”; the service provider was avoiding eye contact and looked extremely uncomfortable” (IDM08 Drug shop, KTC)

At another facility, the SP appeared as if they were talking about something shameful. Thus, the SP was uncomfortable with EC service provision, and the adolescents felt neglected.

“...laughs...! This SP amused me... When I told him that I did it, he immediately felt uncomfortable. The service provider seemed to be talking about something very shameful” (IDA 03, 17 years old adolescent narrating a story about a Drug shop, in NKSC)

Some service providers would speak loudly at the teenagers when they approached them.

Adolescents and MCs could not defend themselves but were upset by the responses of the SP.

“When I entered and I greeted her, she asked what my parents had sent me to buy in the drug shop. When I said that I was the one who needed help, he said...aha...tell me. I told him that I wanted some pills because I had multiple sex partners and had sex last night. He started abusing me for my immorality, and how I can be with many partners; then a female SP had the same approach and was so judgmental and dismissive” (IDA07, 15- years old adolescents at drug shop at NKSC,) and (IDM39 and IDM52, drug shop at NGSC).

In some cases, some providers were nice to the adolescents. The way the teenagers were spoken to and given attention demonstrated this.

“I entered, and she greeted me, gave me a seat, and attended to me... She was polite, listened, asked about the last sexual encounter, counseled me, and encouraged me to make the right choice” (IDA 01, 15-year-old adolescent drug shop at BTC)

Moreover, even some service providers did not know how to handle information about ECs, as expressed by the mystery clients.

“She was willing to give me the ECs on credit even when she didn’t know me well because of my safety, though she discouraged me from using them regularly.” MC at a drug shop 031 in BTC.

4.3.9.3.2 Privacy

Privacy is a quality characteristic. Adolescents expect to express their concerns and to be attended to in the absence of anyone except the service provider. This is because of the sensitivity of adolescent reproductive health matters. The adolescents mentioned that because the facilities were in the middle of the towns and primarily drew a large number of customers, there was no basic privacy.

The teenagers acknowledged that they had fundamental privacy concerns. One teenager described her experience as follows:

“As I started explaining myself to her, she never let me finish my sentence. She was shouting, she seemed arrogant, and she was just talking to her friend” (IDA 06, 18-year-old adolescent at a drug shop at BTC,)

In another facility,

“Imagine there were four men inside the drug shop and this female service provider... When I entered, they all asked me what I wanted, and the service provider requested that I state my need. When I said that I needed some advice because I had slept with my boyfriend the previous night, all the men and the health worker were contributing to giving me the side effects of the emergency contraception. very loud, around me... but without privacy at all! ahh! I felt like disappearing into thin air, yet I am not from this area... I even fear going back to this same facility” (IDM37, Drug shop, BTC).

When there were other patients in the facility, the MC experience was worse. There was absolutely no privacy. Some of them nearly didn't need to explain what brought them.

“I reached them and found other patients. They all saw me and kept quiet. All of them were like, what is your problem? I murmured and finally wanted to say my issue. I failed to express myself, felt shy, and this health worker did not even reach me. She kept on attending to the rest, and I decided to leave.” (IDM41, drug shop at BTC)

4.3.9.3.3 Confidentiality

Confidentiality concerns are a basis for trust between a client and a service provider. During this study, the mystery clients encountered many difficulties expressing their concerns because the SPs were not controlling their voices during service provision. The MCs and the adolescents came to understand that even though they wanted service providers to listen and speak in a low tone, the service providers yelled at them.

“I found her in the drug shop. We had started talking, and I was preparing to tell her how it all started. Then another person entered, and she sent me away because she felt very uncomfortable. She raised her voice and sent me away when another customer came in. I was so embarrassed...” (A female service provider in a Pharmacy at BTC; IDM51 also reported by IDA03, 18 years)

In one facility, the service provider was so loud that the teen felt ashamed to continue the story.

“We started to speak well. I felt I should pour out my challenges, but the more I spoke, the more he would respond, repeating what I had said in a very loud voice. I felt shy while going out, knowing that everyone around me, even in the nearby shops, had heard my story” (drug shop at BTC)

4.3.9.3.4 Cost of emergency contraceptives

In private institutions, emergency contraception was for sale. The price ranged from 5000 to 10,000 UGX (\$1.3–\$2.7). The difference in price was based on the location of the health facility, taking into consideration the travel costs. The district health officer explained that because emergency contraceptives are typically supplied by private service providers and are expensive, adolescents could be discouraged from taking advantage of this service.

In certain cases, when the service providers found that the MCs did not have money to purchase ECs, they could yell at them, making them uncomfortable about requesting this service. Some would give them a cheaper option, preferably the monthly pills.

The adolescents also confirmed that the cost is indeed so high.

“When I asked the price of the pill, he told me 6,000 UGX! Then I told him that I couldn’t afford the price. This male service provider decided to give me the usual monthly birth control pills, which are cheaper, and said.....take these because the other medicines you want are expensive for you” (IDA 01, A 15-year-old adolescent at a pharmacy, at KTC) and IDM 30 at a drug shop, BTC)

Some of the service providers would be abusive as the MCs try to discuss ways to clear the debt.

“She asked me, how much I had to buy the emergency pill...I replied that I had 1000UGX, a female service provider who changed her face, became unfriendly, and could not allow me to bargain with her. She just dropped monthly pills on the table and told me to pay the 1000k because the pills are cheap” (IDM48, at a Pharmacy, BTC)

4.3.9.3.5 Availability of emergency contraception at the private facilities

The availability of ECs at both private and public health facilities in this study area was a very challenging issue. Public-service facilities reported that they did not receive EC stocks from the national medical stores. Private healthcare facilities also frequently run short of ECs. This is because the shopping centers are far from their private health facilities, which delays the time to restock, and the terrain of the area also makes it hard to purchase EC medicines. Some service providers would explain the reason for the stockout to the MCs, saying that due to the topography and state of the roads, accessibility, particularly transportation to urban centers to obtain ECs, becomes challenging.

“He said, you see, we have to get the medicine in... town. And when it is a rainy season, transportation becomes difficult.” (drug shop in NGSC).

At public health facilities, ECs were out of stock. The few dosages, according to the district health officers, were intended to treat rape and defilement cases, and a prescription must be written before the medication is administered.

The narrative from the public health centers

“This is a new health facility without an adolescent corner. The health workers are very willing to provide services if the district institutes the adolescent and youth corner to provide adolescent-friendly services. We have never stocked ECs” A female service provider in a government HCIV at NKSC.

“The facility has an adolescent corner, but it specifically serves HIV-positive adolescents. Other adolescents join the rest at OPD, and in case they need FP services, they proceed to the MCH building, which includes maternity and ANC. There is no specific private place for adolescents there. The facilities are out of stock at the ECs most of the time” A male service provider in a government health center 1V at KTC.

“I asked for help, and the health worker opted to give me monthly pills, saying that the emergencies were out of stock at the time of the visit” A drug shop at NKSC.

The hospital's female service provider at Bundibugyo TC, the only public health facility that offers adolescent sexual and reproductive health services in an urban setting, states that the institution never stocked ECs.

“This is a government health facility that just has an adolescent centre outside the maternity center. By the time the mystery client reached there, there was no one to attend to her. The only person who attended to her was the service provider at the outpatient department”. A male service provider in a government HSP at BTC.

There is evidence that health facility factors have a significant impact on the availability and use of emergency contraception among adolescents in this area. These include the service providers' attitude, practice, and respect for privacy and confidentiality, as well as their cost, accessibility, and availability of drugs.

4.4 Reinforcing factors to access and use of ECs among adolescents.

4.4.1 VHT involvement in access and use of ECs to the adolescents

The members of the village health team, who are responsible for supporting the communities in getting access to services, were perceived as the source of reinforcement. The role of the VHTs is to encourage, support, counsel, and refer the community to obtain the service. In this matter, VHTs were perceived to help adolescents access ECs. However, the study found that VHTs never had a strong support system because they were not knowledgeable about EC utilization by adolescents. Further, their attitudes and perceptions regarding adolescents' EC access and use were negative.

4.4.1.1 Adolescents' perceptions about VHTs support to access and use

In this study, adolescents were asked about the role of VHTs in gaining access to and utilizing ECs. Adolescents stated that VHTs never visited, supported, encouraged, followed up, or referred them to access ECs. According to the observations in this study, when seeking health

services, adolescents do not seek assistance from VHTs (69.9%). Furthermore, most adolescents strongly disagreed with the idea that VHTs tell and urged them to seek EC services (70.2% and 71.0%, respectively). The results are summarized in the graphs below.

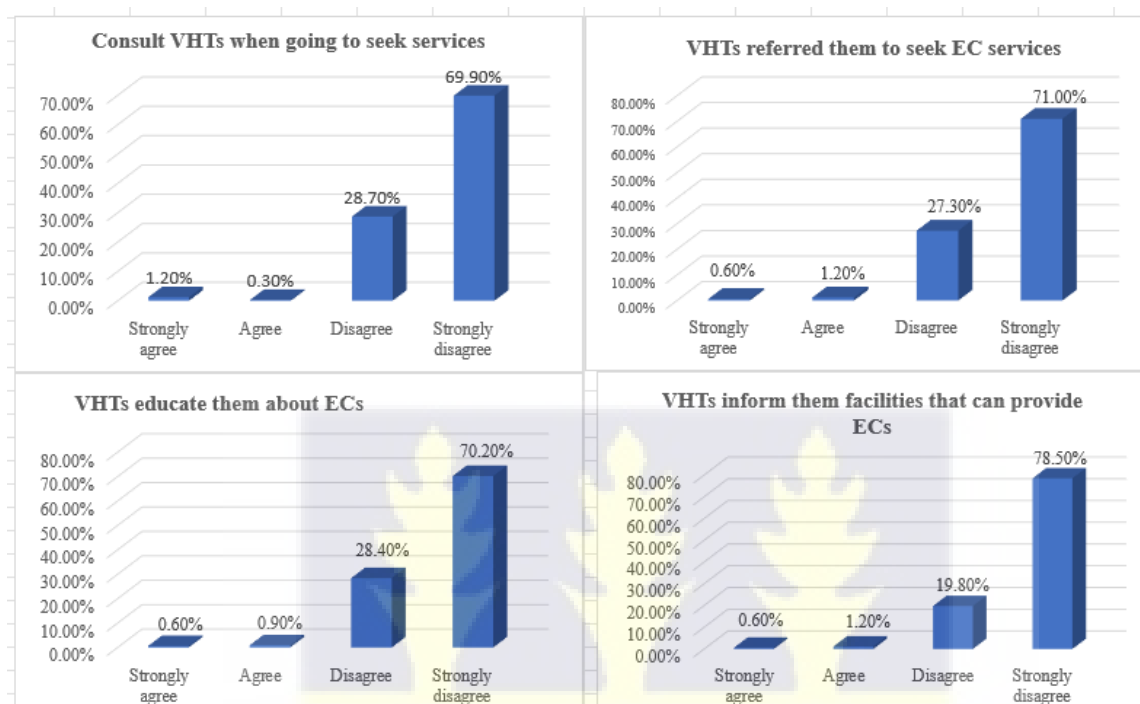


Figure 4: Adolescents responses about VHTs support

4.4.1.2 Qualitative analysis of VHTs involvement in EC service provision to the adolescents

The members of the village health team expressed their thoughts on adolescent use of emergency contraception. It was found out that VHTs did not have knowledge as far as EC service in this area is concerned. Further, their attitudes and perceptions towards helping adolescents access EC services were negative. These discussions are covered in the sections on their knowledge, attitude, support, counseling, referral, and follow-up skills.

4.4.1.2.1 VHTs knowledge about emergency contraception services

Qualitative findings indicated that most VHTs had never heard of emergency contraception.

Here are some of the VHTs' opinions on the topic under debate.

"I haven't heard anything called emergency contraception. What I know are the usual pills that people take every month" VHT 013, BTC

"I only heard about ECs from my friend. She never wanted to deliver, so she had to get ECs from the drug shop" VHT 06, KTC

The other VHTs members were asking what the medicine could look like.

"What is that? Is it a pill, or an injection? The one to insert or? There are a lot of family planning methods coming up" VHT 006, NKSC

"By the way, what is that drug All laugh... You see, we are getting information about this drug that is given to women who inject themselves." VHT, 011 BTC

4.4.1.2.2 VHTs' Attitude to adolescents using emergency contraception

The attitude of VHTs either encourages or discourages adolescents from utilizing EC services. In this instance, some VHTs had a negative attitude towards the use and accessibility of ECs among adolescents. Some VHTs' remarks suggested that adolescents would prefer to become pregnant and give birth than use this modern contraception. They stated that adolescents are susceptible to both sexual promiscuity and reproductive health complications. However, some indicated that they could support the adolescents if they understood ECs.

"Hmm, I am not sure, but I would not support the taking of ECs by adolescents. We could be promoting prostitution by telling adolescents about these family-planning methods." VHT 002, KTC

"I heard from friends who had taken some family planning and developed bleeding, had a heart attack, and failed to deliver. Hum.... These drugs! What if I allow my daughters to take them? Won't this lead to cancer? And if they fail to deliver, I personally fear them" VHT 011, BTC

"Adolescents are supposed to abstain... but here they have sex even at 15 years old. Anyway, this could be a good plan to prevent pregnancy" VHT 017, NGSC.

Some other VHTs attributed the negative attitude to religiosity and culture, which do not allow them to provide family planning to adolescents.

“Our culture doesn’t allow adolescents to take part in family planning. Even when they see her getting the drug, they lose trust in such a destroyed girl” VHT 013, BTC

“For example, my religion doesn’t allow it. I am a Catholic... I would be promoting bad behavior by allowing the girls to engage in sex before marriage. Should this drug be taken by unmarried adolescents? I am not sure, but I won’t like to be part of this.” VHT 007, NKSC

4.4.1.2.3 VHT support to adolescents to access and use emergency contraception

It was found out that VHTs had challenges supporting adolescents to utilize EC services; they stated that they had not provided any. They had no training, and they were not sensitized about EC services. They declared that they could not support a method about which they had little information. Some VHTs had the intention of supporting adolescents' access to ECs because they understood the complications of adolescent pregnancy.

“I have never supported any adolescent taking family planning methods. I fear them myself” VHT 004, KTC

“I have been telling them, I got training on family planning, including the pill. This was at the health center. Some organizations came and taught us the injection, and what to insert through the vagina. But I haven’t heard about emergencies... so I could support if I got the information about it” VHT 002, KTC

“You are right my sister ‘002 VHT’..., our girls here engage in sex, and by the time you realize it, they are pregnant. I would support it if I had a way of understanding what this emergency contraception does” VHT 005, KTC

Among the VHTs in one of the discussion groups, there was a two-way response to the topic.

VHT 010, BTC *“Supporting to do what! To take family planning? ... sobs... me I can’t. Imagine, I have a daughter and I found her taking pills, I would get a heartbreak.”*

VHT 014, BTC *“What if you found her pregnant?”*

VHT 010, BTC *“.... I would get into a heart attack.”*

VHT 014, BTC *“... so what is the best solution? to prevent pregnancy or stop her from taking the pill, but also support her not engage in a lot of sexual activities?”*

VHT 010, BTC *“... oh oh okh, then I choose not to see her pregnant. Thank you!”*

4.4.1.2.4 VHTs counselling to at risk adolescents

The VHTs are required to identify at-risk teenagers, particularly those who are sexually active, pregnant, have given birth, have been raped, violated, or are physically handicapped. These adolescents are meant to seek guidance on how to utilize emergency contraception and sign up for other conventional family planning options. In this study, it appeared that the VHTs counseled the adolescents on other services but did not advise them to access and use ECs.

"I have been counselling adolescents who approach me. For example, a girl from the neighborhood approached me that he wanted to abort. Because she had an unplanned pregnancy, she isn't married, just dropped out of school and I felt pity for her. She can't abort because she will die. So, I have told her to keep the pregnancy, and the shame that comes with it" VHT 016 NGSC.

"Specifically, for emergency contraception, I have not counselled anyone! I have only counselled those who are going to get pills but look, when they reach the facilities, they feel mistreated, uncomfortable, and they are not given enough care... so they do not go back. I don't know what to do there..." VHT 009 NKSC

4.4.1.2.5 VHTs referral of adolescent to access ECs

VHTs bridge the gap between health facilities and communities by providing referral advice. In this study, adolescents were never referred to access ECs by VHTs. Some VHTs had a good perception of referring adolescents if they understood where to get the ECs. In the same way, VHTs guided and followed up with adolescents to access and use ECs.

"I have referred a girl to the government facility to access family planning services, but not for ECs. EC services at government facilities are sometimes given to adolescents who are raped. Even then, those facilities are very far away. Another facility could be the drug shop, but the medicines are expensive for these girls. So, what can be done?" VHT 017 NGSC

"I have referred the girls who have health problems, but not for family planning" VHT 011 BTC

"I haven't had any chance to refer anyone; I am new in VHT roles, but because I am a bit young, I feel I should help them get the services they want." VHT 006 KTC

"Let me ask... where do we get these emergencies? Are they at government facilities or pharmacies and drug shops? So, if it's some private facilities, will the adolescents be able to afford them? All these questions are now in my mind." VHT 008 NKSC.

4.4.1.2.6 Challenges in providing support to adolescents to access and use ECs

The VHTs mentioned a few difficulties. They clarified that the government has never compensated them for the work they provide, and their villages are not easy to access. This has hampered their work, particularly home visits. This factor has impacted access to services for adolescents as well as other services. Further, the fact that adolescents are not supposed to have sex is one of the social and cultural obstacles preventing them from using ECs.

"We VHTs are not even paid for the work they do. So, it's just amazing to realize that even when we engage in adolescent activities and put in our time, we are not compensated" VHT 003 KTC.

"The organization is always at the health center. We have a health worker who is organizing some talks for adolescents. He has helped them find something to do with their hands. So, he could be of help in organizing the VHTs and the adolescents to access such emergency drugs. But otherwise, the government needs to think about our communities." VHT 019 NGSC

"I see a lot of challenges. One of them is that adolescents are not expected to have sexual activity. So even seeing a girl with a man is culturally bad. So, imagine finding a girl getting family planning and, in particular, an emergency drug. The word emergency is so serious, as if these girls are raped... all laugh... Please, let me tell you! Here, girls accept themselves. VHT nodes the head." VHT Coordinator BTC



4.5 Findings from the Reproductive Health Educational Intervention (Study Phase 2)

4.5.1 The effect of the RHEI on predisposing factors

4.5.1.1 The effect of the RHEI on the use of ECs among adolescents

During the intervention period, overall, the utilization of emergency contraceptives increased. In the intervention group, use increased from 13% (95% CI: 10.2%–18.6%) to 58% (95% CI: 49.2%–65.9%), compared to 16% (95% CI: 12.2%–22.5%) to 26% (95% CI: 23.8%–37.2%) in the control group.

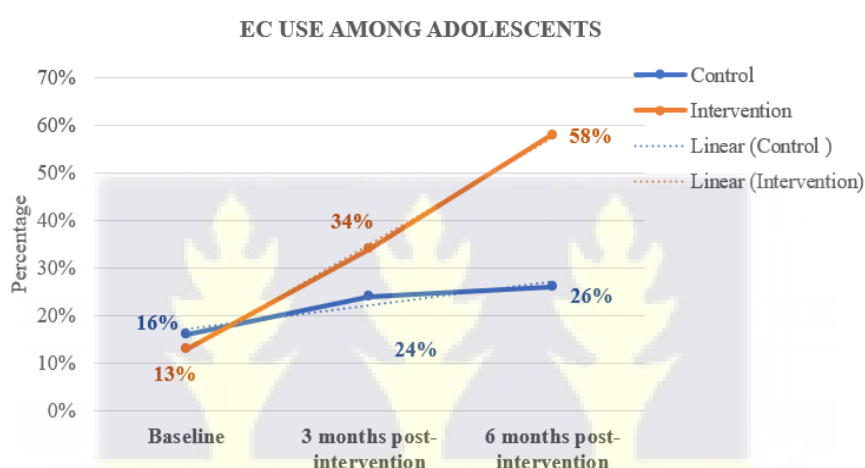


Figure 5: Comparison of EC use among adolescents pre- and post-intervention.

A mixed effect logistic regression model on adolescents' EC use indicated that overall, adolescents in the intervention group had eight times the odds of using ECs compared to those in the control groups (AOR = 8.07; 95%CI: 3.73–17.46; $p < .001$). Irrespective of the age bracket, adolescents in the intervention group had eight times the odds of using ECs compared to those in the control group (AOR = 8.06; 95% CI; 3.73 -17.40; $p < 0.001$). The urban adolescents had about three times the odds of using ECs compared to those from rural settings (AOR =2.40; 95% CI: 1.19–4.84; $p < 0.01$). The sexually active adolescents in the intervention group had five times the odds of using ECs compared to those in the control group (AOR =5.41; 95% CI: 2.31-12.68; $p < 0.001$) (table 23).

Table 23: A mixed-effect logistic regression of the RHEI on the use of ECs among adolescents

Measured variable	Sub variables	COR (95% CI)	LR test vs Logistic model χ^2	p-value
Age (years)	*	8.058 (3.731 - 17.404)	131.75	0.0001
	14-17	1 (ref)		
	18-19	2.066 (1.024-4.171)		0.043
Level of education	*	7.332 (3.385 - 15.883)	133.02	0.0001
	None	1(ref)		
	Primary	1.566 (0.470 - 5.211)		
	**Secondary	2.534 (0.665 - 9.655)		0.173
Occupation	*	8.521 (3.857 - 18.824)	134.48	0.0001
	None	1 (ref)		
	**Self employed	1.412 (0.526 - 3.794)		
	On skills training	2.364 (0.311 - 17.976)		0.406
Marital status	*	9.202 (3.780 - 22.284)	135.31	0.0001
	Not married	1 (ref)		
	Married	0.766 (0.331 - 1.773)		0.534
Residence	*	8.159 (3.783 - 17.593)	128.71	0.0001
	Rural	1 (ref)		
	Urban	2.400 (1.190 - 4.840)		0.01
Ethnicity	*	5.259 (1.334-24.393)	133.45	0.034
	Munyankore	1 (ref)		
	Muganda	2.130 (0.230 - 19.721)		
	Mutooro	2.516 (0.458 - 13.816)		
	Mukonjo	1.458 (0.269 - 7.899)		
	Mubwitsi	2.446 (0.414 - 14.455)		
	Mufumbira	1.118 (0.197 - 6.354)		
	Others	1.274 (0.307 - 5.292)		
Religion	*	10.303 (4.450 - 23.856)	131.94	0.0001
	Catholic	1 (ref)		
	Protestant	0.519 (0.206 - 1.309)		
	Muslim	0.732 (0.205 - 2.611)		
	Pentecostal	1.467 (0.491 - 4.376)		
	**Others	0.490 (0.150 - 1.604)		
	*	5.412 (2.311-12.677)		
Ever had sex	No	1 (ref)	130.52	0.0001
	Yes	440.18 (58.88 - 3290.379)		
Overall effect of intervention on use of EC		8.073 (3.732 - 17.463)	135.5	0.0001

* * The MELR model effect of the intervention in subgroups of the adolescents' demographics

4.5.1.2 The effect of the RHEI on the knowledge of ECs among adolescents

The results indicated that adolescents' knowledge of EC use increased in the post-intervention phase. The graph below indicates that in the intervention group, knowledge increased from 17% (95% CI: 12.2%–23.4%) to 87% (95% CI: 81.1%–91.2%). In contrast, the knowledge of the control group increased marginally from 13% (95% CI: 8.5%–18.6%) to 28% (95% CI: 21.6%–34.9%), as indicated in the graph below.

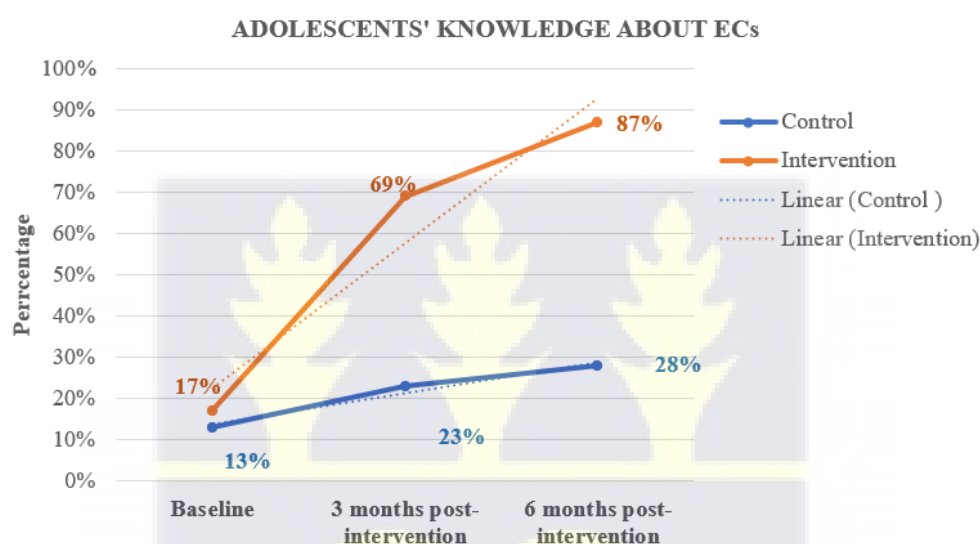


Figure 6: Comparison of the knowledge about ECs use among adolescents pre and post intervention.

Overall, adolescents in the intervention group had 12 times the odds of being knowledgeable about ECs compared to those in the control arm (AOR = 11.71; 95% CI: 6.67–20.54; $p < 0.001$). Concerning the age group, adolescents in the intervention arm had 12 times the odds of being knowledgeable about ECs compared to the similar age group in the control category (AOR = 11.74; 95% CI: 6.70–20.59; $p < 0.001$). Further, adolescents in the ethnic category in the intervention arm had 23 times the odds of being knowledgeable about compared to the similar ethnic category in the control arm (AOR = 22.92; 95% CI: 7.29–72.06; $p < 0.001$). All other

variables in the intervention arm had higher odds of being knowledgeable about ECs compared to the control arm ($p < 0.05$).

Specifically, in the subgroups, adolescents in urban settings in the intervention group had twice the odds of being knowledgeable about ECs compared to rural adolescents (AOR = 1.84; 95% CI: 1.12–3.00). An adolescent who has ever had sex in the intervention group had five times the odds of being knowledgeable about ECs compared to one who had never had sex (AOR = 5.20; 95% CI: 2.75–9.82). An adolescent who has used ECs in the intervention group had 139 times the odds of being knowledgeable about ECs compared to one who had never used ECs (AOR = 139.0; 95% CI: 55.11–353.75) (table 24 below).



Table 24: The mixed-effect logistic regression of the intervention on the knowledge on ECs and adolescents' demographics

Measured variable	Sub variables	COR (95% CI)	LR test chi ²	p-value
Age (years)	*	11.741 (6.694-20.593)	77.58	0.0001
	14-17	1 (ref)		
	18-19	1.594 (0.973 - 2.611)		0.064
Level of education	*	10.655 (6.084 – 18.659)	76.67	0.0001
	None	1(ref)		
	Primary	1.625 (0.725 - 3.642)		
	**Secondary	2.512 (1.007 – 6.264)		0.048*
Occupation	*	12.533 (7.054 - 22.268)	75.68	0.0001
	None	1 (ref)		
	**Self employed	2.035 (1.013 – 4.088)		
	Apprenticeship	3.223 (0.828 -12.454)		0.092
Marital status	*	11.664 (6.189 - 21. 982)	79.11	0.0001
	Not married	1 (ref)		
	Married	1.01 (0.556 - 1.825)		0.93
Residence	*	11.871 (6.784 - 20.773)	75.23	0
	Rural	1 (ref)		
	Urban	1.836 (1.124 - 3.001)		0.015*
Ethnicity	*	22.915 (7.287 - 72.061)	73.15	0.0001
	Munyankore	1 (ref)		
	Muganda	0.287 (0.048 - 1.729)		
	Mutooro	1.420 (0.433 - 4.658)		0.173
	Mukonjo	0.457 (0.137 - 1.529)		0.563
	Mubwitsi	0.545 (0.154-1.926)		0.204
	Mufumbira	0.545 (0.154-1.926)		0.346
	Others	0.592 (0.177 - 1.977)		0.394
Religion	*	2.132 (0.854 - 5.318)	77.81	0.0001
	Catholic	1 (ref)		
	Protestant	1.065 (0.567 -1.998)		
	Muslim	0.801 (0.322 – 1.992)		0.845
	Pentecostal	0.973 (0.440 - 2.150)		0.634
	**Others	0.973 (0.440 - 2.150)		0.946
	**Others	0.633 (0.274 - 1.464)		0.285
Ever had sex	*	8.752 (4.998-15.327)	64.62	0.0001
	No	1(ref)		
	Yes	5.200 (2.753-9.821)		0.0001*
Ever used ECs.	*	11.392 (5.929-21.888)	75.43	0.0001
	No	1 (ref)		
	Yes	139 (55.107-353.750)		0.0001*
Overall effect of intervention on knowledge		11.705 (6.670 - 20.543)	79.11	0.0001

* MELR effect of the intervention in subgroups of the adolescents' demographic characteristics

4.5.1.3 The effect of the RHEI on the attitude of adolescents to ECs

The overall attitude of adolescents in the intervention district improved as compared to the control district. The data illustrated that the attitudinal disposition increased nearly threefold in the 6-month period after intervention among the intervention group vs. control group compared to the baseline findings (as shown in the graph below).

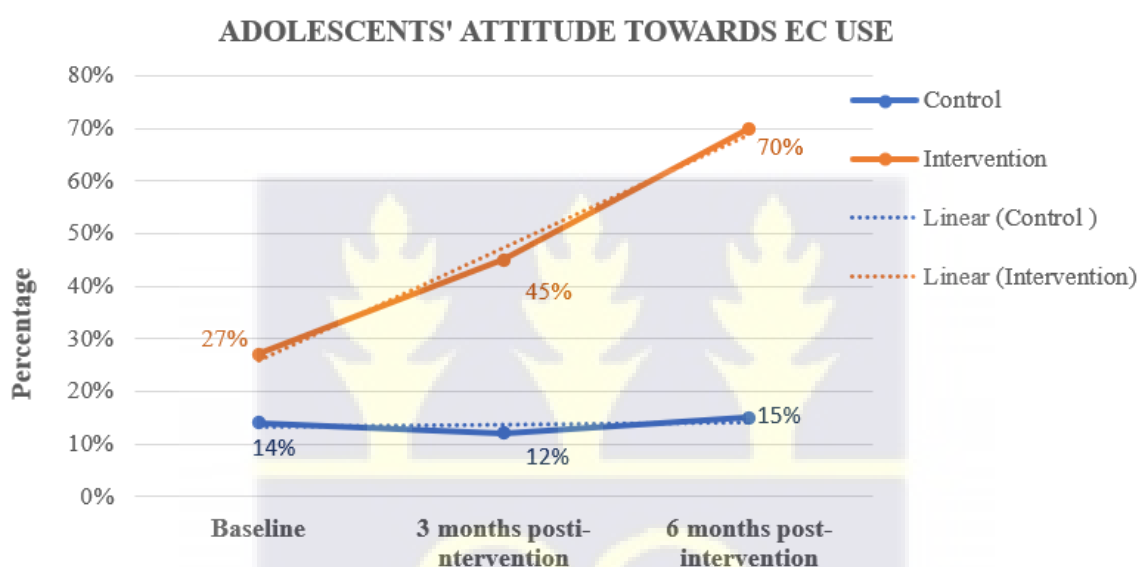


Figure 7: Comparison of the attitude of adolescents to ECs use pre- and post-intervention.

The adolescents in the intervention group had 17 times the odds of having a positive attitude towards EC use compared to the adolescents in the control groups (AOR =16.47; 95% CI: 8.39-33.24; $p<0.001$). The model further indicated, concerning the age group category, that the adolescents in the intervention group had 16 times the odds of having a positive attitude towards EC use compared to the adolescents in the control groups (AOR =16.52; 95% CI: 8.40-32.47; $p<0.001$). Among those who ever had sex or used ECs, the adolescents in the intervention group had about 13 and 16 times the odds of a positive attitude towards EC use compared to the

adolescents in the control groups [AOR =12.61; 95% CI: 6.33–25.11) and AOR =16.17; 95% CI: 7.62–34.32; $p<0.001$].

Within the subgroups, the MELR results indicated that the married adolescents in the intervention group had twice the odds of having a positive attitude towards EC use compared to the unmarried ones (AOR =1.95; 95% CI: 1.01–3.75; $p<0.05$). Further, the adolescents who had ever had sex or used ECs had 6 or 7 times the odds of having a positive attitude towards ECs use compared to those who had never had sex or used ECs, respectively [AOR =6.07; 95% CI: 2.81–13.12; $p<0.01$ and 7.44;95% CI: 4.07-13.59; $p<0.01$].

Apart from marital status, history of sexual encounters, and EC use, which were significantly associated with positive attitudes towards EC use within their subgroups (< 0.05), the effect of the intervention was generally distributed among the rest of the predictor variables (Table 25).

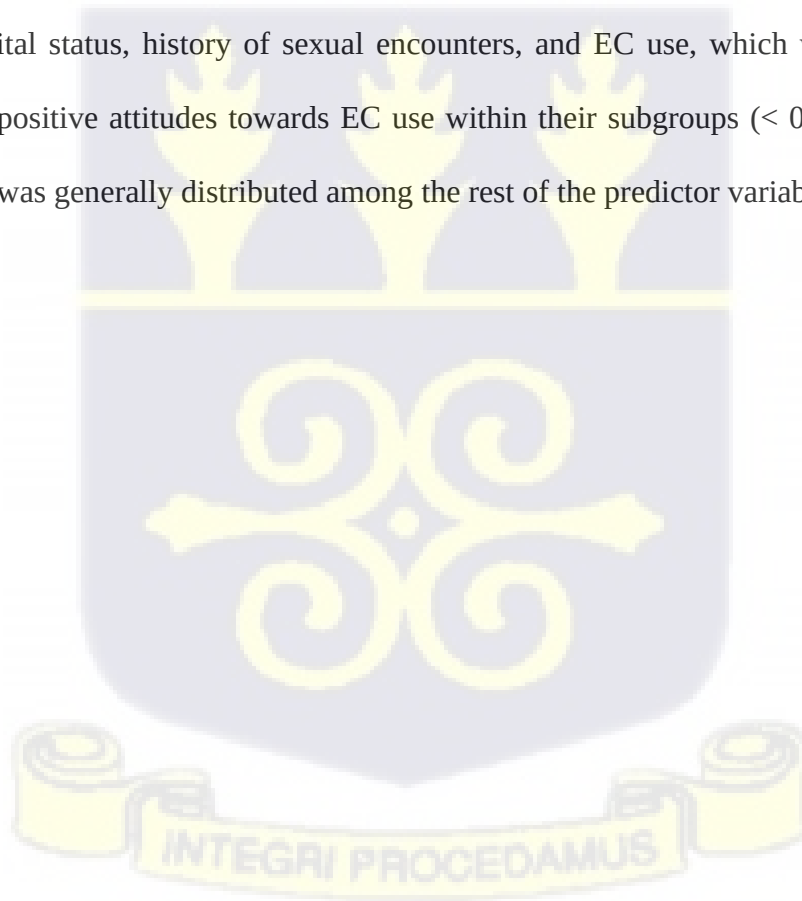


Table 25: The mixed-effect logistic regression of the RHEI intervention on the attitude of adolescents to EC use

Measured variable	Sub variables	COR (95% CI)	LR test chi ²	p-value
Age (years)	*	16.520 (8.404 - 32.474)	91.24	0.0001
	14-17	1 (ref)		
	18-19	1.395 (0.795 - 2.447)		0.245
Level of education	*	16.905 (8.533 - 33.492)	89.98	0.0001
	None	1(ref)		
	Primary	1.097 (0.437 - 2.755)		0.844
	**Secondary	0.758 (0.268 - 2.145)		0.601
Occupation	*	16.961 (8.508 - 33.816)	89.89	0.0001
	None	1 Ref)		
	**Self employed	1.883 (0.860 - 4.123)		0.114
	On skills training	1.796 (0.347 - 9.286)		0.485
Marital status	*	11.661 (5.645 - 24.091)	88.52	0.0001
	Not married	1 (ref)		
	Married	1.951 (1.014 – 3.754)		0.045*
Residence	*	16.519 (8.407 - 32.459)	91.47	0
	Rural	1(ref)		
	Urban	1.092 (0.624 - 1.911)		0.757
Ethnicity	*	32.939 (8.649 - 125.449)	88.16	0.0001
	Munyankore	1 (ref)		
	Muganda	0.721 (0.111 - 4.693)		0.732
	Mutooro	0.665 (0.158 - 2.804)		0.578
	Mukonjo	0.388 (0.097 - 1.560)		0.182
	Mubwitsi	0.553 (0.131 - 2.326)		0.419
	Mufumbira	2.529 (0.735 - 8.703)		0.141
	Others	0.481 (0.138 - 1.674)		0.25
Religion	*	15.840 (7.837 - 32.017)	89.66	0.0001
	Catholic	1 (ref)		
	Protestant	1.312 (0.642 - 2.682)		0.457
	Muslim	0.588 (0.207 - 1.674)		0.32
	Pentecostal	0.794 (0.3119 - 2.031)		0.631
	**Others	1.265 (0.502 - 3.188)		0.618
Ever had sex	*	12.606 (6.330-25.105)	112.14	0.0001
	No	1 (ref)		
	Yes	6.069 (2.809 - 13.116)		0.0001*
Ever used ECs.	*	16.173 (7.620-34.324)		0.0001*
	No	1 (ref)	91.74	
	Yes	7.441 (4.074 – 13.592)		0.0001*
Overall effect of intervention on attitude		16.471 (8.386 - 32.349)	91.48	0.0001

* The MELR model effect of the intervention in subgroups of the adolescents' demographics

4.5.2 The effect of RHEI on enabling factors to access and use of ECs among adolescents

4.5.2.1 Effect of the RHEI on knowledge, attitudes, and practices of service providers

The percentage of knowledgeable service providers increased from 23.9% to 89.1%. Additionally, the proportion of service providers with a good attitude increased from 17.4% to 80.4%. The training increased service providers' confidence in providing ECs to adolescents by more than fourfold, from 23.9% to 97.8%. And finally, the practice of providing ECs among service providers increased from 26.1% to 93.5% because of RHEI.

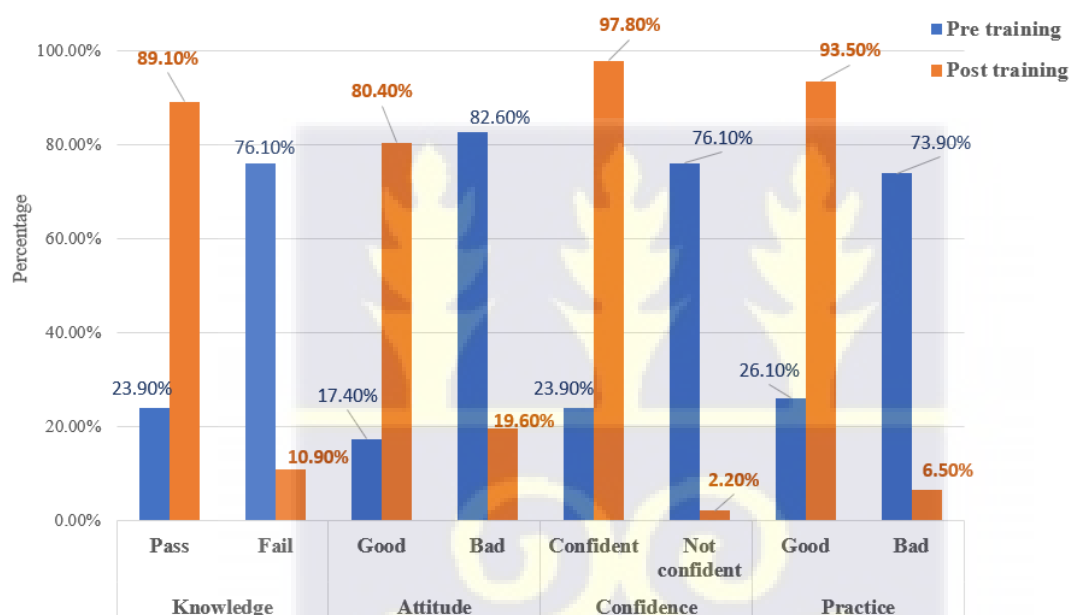


Figure 8: The effect of RHEI on service providers knowledge, attitude, confidence, and practice.

The effect of the intervention among service providers was analyzed using difference in difference (DID) analysis. There was a significant improvement in knowledge, attitude, confidence, and practice among service providers because of the intervention. All the outcome variables showed statistical significance at a $p < 0.001$. The odds of the service providers' knowledge, attitude, confidence, and practice in providing ECs to the adolescents in the post-intervention phase increased by twenty-six folds (OR = 26.09; 95% CI: 8.27–82.35), twenty

folds (OR =19.53; 95% CI: 6.08–56.05), one hundred and forty-three folds (OR =143.18; 95% CI: 17.64–1162.52), and forty-one folds (OR =40.61; 95% CI: 10.60–155.20) when compared to the pre-intervention phase (Table 26 below).

Table 26: Logistic regression of the effect of RHEI on service providers.

Outcome variable	OR	CI	p-value
Outcome: Knowledge			
Control	1 (ref)	-	-
Intervention	0.733	0.282-1.910	0.525
Timeline			
Pre-intervention	1 (ref)	-	-
Post-Intervention	26.091	8.267-82.345	0.000
Outcome: Attitude			
Control	1 (ref)	-	-
Intervention	1.895	0.525-6.841	0.329
Timeline			
Pre-intervention	1 (ref)	-	-
Post-Intervention	19.528	6.0803-56.054	0.000
Outcome: Confidence			
Control	1 (ref)	-	-
Intervention	0.829	0.314-2.185	0.704
Timeline			
Pre-intervention	1 (ref)	-	-
Post-Intervention	143.182	17.635-1162.52	0.000
Outcome: Practice			
Control	1 (ref)	-	-
Intervention	0.431	0.174-1.068	0.069
Timeline			
Pre-intervention	1 (ref)	-	-
Post-Intervention	40.611	10.604-155.520	0.000

Controlling for service providers' gender, age, years of experience, qualification, type of facility, and residence

The effect of the RHEI on Quality-of-service provision as observed by mystery clients

The reception of service providers increased from 2.4% at baseline to 30.9% at six months post-intervention. At the intervention group, the reception improved from 0% at baseline to 57.1% and 50.0% at 3- and 6-months post-intervention, respectively.

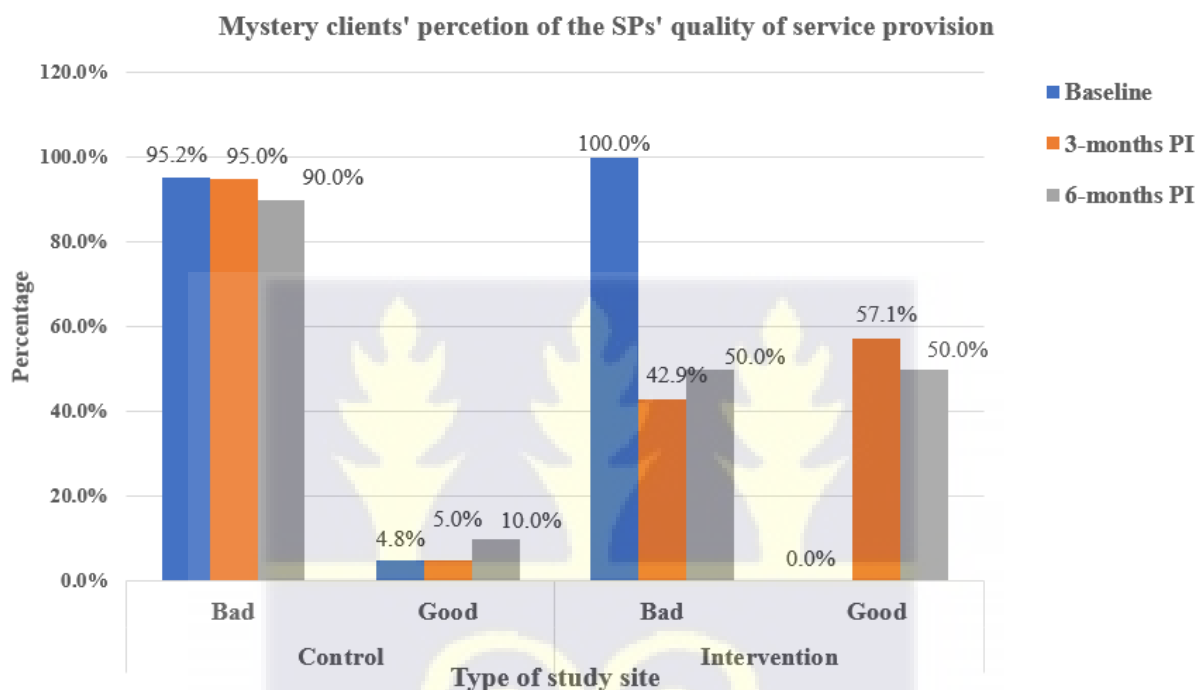


Figure 9: Quality of service provision by providers as observed by the mystery clients.

4.5.2.2 Qualitative analysis of the expressions and opinions about the access and use of ECs among adolescent mystery clients

4.5.2.1 Adolescents' understanding of EC after the intervention

Adolescents identified that ECs are beneficial because they prevent pregnancy. However, they perceived threats to EC use. Most of them even feared to ask the service providers. Though they didn't want to get pregnant, they didn't know what to do. After the intervention, the adolescents

got information from the service providers, friends, and VHTs. This reduced their fears and anxieties.

“I thought the ECs had side effects and used aspirin as a form of family planning, but since I got information from the provider as I had gone to get another method, ECs sound helpful in times of need” AD 335, 15 years NGSC.

“I have been HIV-positive and on ART. I was given a box of condoms to use. These are almost over; I am not sure that I will get more. I also need to know about ECs because I don’t want to get pregnant”. AD 11, 19 years, KTC

“I have used ECs 3 times in one year. I think this is the safest” AD 128 16 years, NKTC.

“I don’t want to get pregnant again. I feel ECs are the best option now” AD 197 19 years, BTC.

“I missed period and over bled on the next one after using an injection. Because I still have fears using the routine methods, I was told by the service providers that ECs will help” AD 218, 18 years, BTC.

However, an adolescent from the control group still had fears about the side effects.

“I feared ECS because I hear they have side effects... that it destroys the eggs, and my womb, so I won’t be able to produce a child. I fear using them” AD 119, 18 years, NKSC.

4.5.3.2 Adolescents’ perception of improved quality-of-service provision post-intervention

The adolescents reported an improvement in the quality-of-service provision. Service providers seemed to have improved their perceptions about service provision to adolescents. This was evidenced by the expressions and opinions that were described by the adolescents. Most adolescents in the intervention group said that they obtained information and help from the service providers.

“I am a teenage mother, unmarried but currently breastfeeding, and I use traditional methods of family planning. I have no problem with using ECs because the service provider assisted me in understanding them” AD 215, 19 years, BTC.

“I used injection and pills, and both cause heavy bleeding to me. Recently, I opted to use ECs after talking to the service provider” AD 222, 15 years, BTC.

“Adolescents prefer using pills because they are cheap. The health workers advised them to use pills. Recently, the nurse at the HC IV advised us to use ECs as we prepare for the routine method” FGD, NGSC

“The nurse has educated me that instead of becoming pregnant, I would rather use ECs. I liked the idea and her counsel” AD 271, 16 years, NGSC.

Most of the adolescents commended the services rendered to them at health centre IV, which is a government facility, even though the emergency pills were not available.

“We attended a session where they taught us about monthly pills and injections. In fact, we have adolescent meetings every Wednesday at the health centre. Now our educator told us about EC. We tried asking him if he could give them to us for free, and he said that he would request the government to supply them. Otherwise, he referred us to drug shops” FGD HC in NKSC

Mystery clients also reported that the service providers changed their attitudes during the subsequent visits.

“At the previous visit, there was something she seemed to be hiding as if she were suspicious! But during the 2nd and 3rd visits, she talked to me normally in private so other people would not easily pick up what we were talking about” MC drug shop 041 in BTC.

“I really learnt more from him... and he even advised to get the money as soon as possible coz my safety should always be my priority” MC drug shop 025 in NGSC.

*“By the time you (**the RA team**) visited me, I was pregnant, I had just delivered. I wished that I had known this method, I wouldn't be pregnant. I was helped by the service provider to know ECs”* AD 200, 17 years, BTC.

However, the quality of care remained the same in the control group, with service provision challenges illustrated by the adolescents.

“She was outside having her hair worked on and it was another person that attended to me and therefore we never had a conversation, but she was only called in to come and bargain about the price” MC drug shop 006 KTC.

“The health workers come to educate us about family planning but had never heard about ECs. We just heard it from you...all laugh...” FGD in NKSC

4.5.2.3 Mystery clients' post-intervention opinions of service providers' attitude towards providing ECs to adolescents

The service providers changed their attitude because of this intervention. This is attested to by the adolescents who accessed the services after the intervention. The visits by mystery clients also revealed a positive influence. They identified more positive attitudes during the 2nd and 3rd visits as compared to the 1st visit.

"The lady was welcoming but seemed shy and not knowledgeable on the subject matter the first time I visited her. During this visit [post-intervention], I was impressed. She was receptive and I was counseled on ECs and other family planning methods" MC, drug shop 024, NGSC.

"During my initial visit, he was introverted and detached from the issues of adolescents. He seemed to be sending me away, but my second visit was interesting! She didn't give me the ECs because I didn't have the money, but she explained to me how to use them, the place was not busy" MC, pharmacy 032, BTC.

"He was not welcoming and never gave me time to hold a conversation with him during the first visit. But this recent time, we never had a long conversation, and I think maybe if he had, he would have attended to me because he was really welcoming and therefore educated me about them." MC, pharmacy 044, BTC.

Conversely, the mystery clients identified that there were no changes in attitude among health workers in the control district.

"The service provide was very polite, I found a man who welcomed me, but could not talk about ECs. It was as if it was a shame" MC, drug shop 014, NKSC.

"I remember the other time, I found this service provider was watching television, so it felt like she was being bothered and still this time, I found her cooking. She never minded me" MC, drug shop 017, NKSC.

"She was out, but she came with a facial expression that made me scared" MC, drug shop 004, KTC.

"I remembered this service provider for the frequent visits I had to this facility. He was very loud even in the presence of the other clients, and with a sarcastic laugh after realizing that I didn't have the money even when I tried explaining myself, he withdrew from me and went to other clients. He was talking about the current situation and was not even willing to deduct a coin. I really got embarrassed in the presence of the other clients" MC, drug shop 009, KTC.

“She sent me away when another customer came in. She seemed uncomfortable. She only offered birth control pills, because of their cheap price... they never gave me any information about ECs but instead referred me to a nearby pharmacy that they thought would have the pills. I still have memories from the previous visit... They were not welcoming because they were focused on their talks, but they never minded me.” MC, drug shop 007, KTC.

Compared to the situation at the control site, most of the service providers had a poor attitude, which made the mystery clients uncomfortable. The mystery clients described situations; that they were embarrassed and disgraced by these service providers, expressing that they would not like to go back to the same facilities to utilize any services.

“Ehh...! service provider had attitude! I experienced this when I asked and she just walked away” MC, drug shop 004, KTC.

“The service provider at first was friendly. She greeted me, but when I started telling her my problem, she sent me away immediately! She never changed through the visits” MC, drug shop 006, KTC.

“I got this information from my friend, who is in secondary school. I have used them, but the service providers seem not to be friendly” AD 119, 18 years, NKSC.

“If she had authority, she would have bitten me. She was asking if she was my boyfriend when I said that I could not afford the price. Her character has not changed for the three times I have visited this drug shop” MC drug shop 015, NKSC.

4.5.2.4 Service providers’ referral of adolescents for EC services post-intervention

The mystery clients reported that the service providers in the intervention arm were able to refer them to other facilities that had emergency contraception. This was in situations where the drug was out of stock.

“She sent me to a nearby pharmacy that she knew had the ECs. She took her time to direct me because I told her that I was not from that location. She was kind and explained about the drug” MC, drug shop 021, NGSC.

“He welcomed me and told me that ECs were out of stock by the time I visited the facility. He sent me to another facility, though he said that it was a bit far. He encouraged me to get the ECs rather than get pregnant.” MC, drug shop 024, NGSC.

“This service provider asked me what I wanted, and when I told him that I needed ECs, he sat me down, counseled me, and then directed me to a nearby pharmacy that would have ECs. The drug shop was almost empty.” MC, drug shop 038, BTC.

4.5.2.5 Perception about the privacy and confidentiality at the health facilities post-intervention

The mystery clients reported that most health facilities did not have enough space. However, the service providers in the intervention arm would try to create some privacy. Further, privacy would be assured when the service provider was found alone in the facility.

“At this facility, the first time I visited, there were 4 men inside the drug shop, but all were contributing to give me the side effects of the ECs...very loud, around me. This time [post-intervention] the service provider-maintained privacy, though I found his friend, he requested to talk to me privately and immediately” MC, drug shop 027, NGSC.

“Most of my questions were answered and she told me more even when I never asked, because she explained everything. There was privacy since the place was wide enough, and there were no clients other than me” MC, drug shop 035, BTC.

At the control arm, did not observe privacy even when service providers were alone in the facility. The MCs were not free to speak their concerns because the SPs were speaking with other friends/customers.

“The service provider was polite, but she didn’t have any knowledge on what ECs are... that was the first visit. This time, I found a man who seems to know what I am talking about, he wanted to help me, but more people entered, so he left me, and I felt insecure. The place had no privacy” MC, pharmacy 002, KTC.

“The lady seemed arrogant, just talking to her friend. The drug was out of stock, and the drug shop was in a busy area” MC, drug shop 006, KTC.

The confidentiality issue was pointed out during the visits by the mystery clients.

Most service providers at the intervention were able to portray confidentiality after the intervention. They spoke in a low tone and assured the MCs of keeping their secrets. The SPs helped in packing EC medicines in opaque material and did not write their particulars anywhere in the books, which was a sign of high confidentiality.

“The first time I visited, the service provider was so loud, almost screaming, I felt shy while going out. But during this visit, she was indeed a parent and very welcoming, she made sure she gave me the advice confidently and with a friendly voice, and very low so that none of the people heard what we said” MC, pharmacy 049, BTC.

“He advised me on how to use it and he didn’t want to write the description down as he wanted to pack them without anyone noticing” MC, drug shop 022, NGSC.

On the contrary, some service providers still had confidentiality issues at the control side concerned. They seemed to be loud, that they did not mind about the sensitivity of the subject matter.

“The service providers do not keep our secrets. I don’t feel like telling them my problems. I don’t want to go back.”. AD 72, 19 years at Bundibugyo Hospital

“I think this service provider doesn’t care about the clients. The other time, she was shouting at me, indeed she was very loud. This time, she was taken up in another conversation, even giving my problems as an example outside her drug shop with other people” MC, drug shop 015, NKSC.

4.5.2.6 Availability of the medicines at the health facilities post-intervention

No government facilities had ECs in stock to give to the adolescents. The service providers at these facilities said that the government does not send enough quantities of ECs to cater for the adolescents. Also, some of the private health facilities had stock-outs. Service providers found it hard to re-stock because of terrain and topography challenges especially when it is a rainy season.

“He was discussing the issues with other patients. He told me that ECs were out of stock/ she was friendly” MC, drug shop 0025, NGSC.

“I thought ECs were given at the government hospital but when I went there, they were out of stock” AD 348, 16 years, NGSC.

“He (the male service provider) told me that ECs were out of stock, he was going to restock the next morning/ He was welcoming, gave me a sit and listened to me. He seemed to be a good counsellor” MC pharmacy 001, KTC.

4.5.2.7 Perception about the cost of the ECs at the health facilities post intervention

Most adolescents claimed that ECs are highly expensive. The price ranges from Ugx 5000 to Ugx 10,000 (\$1.3 to \$2.7). Adolescents who are heavily reliant on their parents cannot cover this expense. They had trouble obtaining them for this reason. Despite the fact that a number of adolescents believed ECs to be free, this was not the case at private facilities. After the training, the service providers in the intervention group were willing to lower the fee for the adolescents.

“I used ECs once and stopped using them because of the price but I am not using any method. Recently, I was encouraged, so I went and got them from the drug shop at a cheaper price (UGX4000) but previously it was above UGX5000. I now resumed using ECs as I am seeing the importance. I never want to be pregnant. It’s a shame” AD 352 15 years, NSC.

“I used ECs once, but the price was very high for me! Thanks to the service providers. I recently got ECs at the subsidized price” AD 304, 16 years, NGSC.

“I fear other methods of family, however, I can’t ford the ECs. I request the service providers to give the ECs to adolescents free of charge” AD 102, 15 years, NKSC.

Some adolescents thought the ECs were free of charge. They were disappointed by the cost, as they couldn’t afford it.

“I thought are free of charge! Hmm...one time I went to get them, I only had UGX 1000. The nurse could not give them to me, though they explained, and I understood” AD 342 17 years BTC.

“He was really friendly thou money minded because he told me nothing about the ECs other talking about the money” MC drug shop 004, KTC.

The adolescents resorted to using the natural FP methods because the cost of ECs was too high for them.

“I use the calendar method to protect myself from getting pregnant. On top of the calendar method, I wish to use ECs, but they seem expensive” AD 290, 18 years, BTC.

4.5.3 The effect of RHEI on reinforcing factors to access and use of ECs among adolescents

4.5.3.1 VHT support to adolescents to access and use ECs.

The VHTs improved their support for adolescents' access to and use of ECs. This was mainly noticeable at the intervention site. The VHTs visited the adolescents and counseled them on the challenges associated with adolescent pregnancy. They recommended adolescents utilize ECs and informed them where to find them. The adolescents reported that VHTs had personally visited them and were discussing private topics with them.

“VHTs visited me and advised me to use ECs in cases of emergency” AD 191, 16 years, BTC.

“I discussed pills and injection with mum who discouraged their use. Recently, the VHT visited me, and we discussed the EC as an emergency pill. Now I am comfortable using it” AD 205, 18 years, NGSC.

“I used the traditional method of family planning, but I am currently pregnant, I was visited by the VHT and now I have a positive attitude towards using ECs” AD 228, 17 years, BTC.

“VHTs taught us the 28 cycle pills and recently re-visited us to teach us about ECs. She looks friendlier than before. We talked a lot” FGD, NGSC

In the control group, the adolescents said that VHTs had never supported them to access and use ECs.

“I have taken ECs at wrong times and think they are likely monthly pills, but I have now learnt how to take the pills from you (meaning research assistants). VHTs haven't visited us for this matter” AD 87, 15 years, NKTC.

4.5.3.2 Government programs that promote EC use

It is believed that the government encourages adolescents to use ECs. However, it was discovered that adolescents were not supported in this study area. The public health facilities did not have ECs there. According to the key informants and mystery clients, the government should encourage EC usage among adolescents. The public health facilities required stocking. VHTs need financial assistance to do their job. There is a need for comprehensive training among VHTs on topics relating to ECs use and access among adolescents. Therefore, the government must consider empowering them through these forms of training.

“I am 18-year-old and use ECs, but the cost is too high ... I am requesting the government to send the ECs to the adolescent corners” AD 299, 18 years, NGSC.

“We need drugs at the government facilities. There are hardly any drugs to cure our diseases. Even when you go with a mother for delivery, it’s very hard to find all drugs there. It is not only to the adolescents. I think the country is undergoing struggle” VHT 009, NKSC

“Let the government also empower the private facilities, since these drugs can also be found there. So that the adolescents can also be helped to get them. There is a lot they can learn from the service providers” VHT O12, BTC, and a Key informant from the District Health Office.

“As I had asked before what emergency family planning method is, there is need for training the VHTs. It is important in this situation. None of us is trained in giving the emergency drug to the adolescents. We do not even know how it looks like, how it works, if it is fit for adolescents or not. So, let the authorities think about giving us the knowledge and we shall deliver to the adolescents”. VHT 008, NKSC

4.6. Summary of chapter four

The results from this chapter demonstrated that rural areas of Uganda have a high prevalence of sexual encounters among out-of-school adolescents. Furthermore, the utilization of ECs and other family planning methods is still low. The knowledge and attitude of adolescents were low. The knowledge, attitude, confidence, and practices of service providers were low VHT involvement to support, counsel, refer and follow up with adolescents to access and use ECs was low. There was evidence that the RHEI improved the adolescents’ predisposing, enabling, and reinforcing factors.



CHAPTER FIVE

5.0 DISCUSSION

5.1 Introduction

This chapter presents the findings from the study as well as evidence from other researchers globally. Findings on EC prevalence, and predisposing factors (adolescents' knowledge, and attitude) are discussed. The enabling factors (service providers' knowledge, attitude, and practices, plus other availability, affordability, and accessibility). The reinforcing factors (VHTs support, counseling, and referral) were also discussed in this chapter. Finally, the effect of the intervention on the predisposing, enabling, and reinforcing factors, and the conclusions and recommendations were discussed in this chapter.

5.2 Socio-demographic characteristics of participants

In this study, half the adolescents were 14–17 years old. In these years, most cognitive, physical, and mental capabilities develop. The senses of intuition and cognition also develop in this mid-adolescence stage (UNICEF, 2016; WHO, 2022a). Uganda's 24.3% of the population is 10–19 years old [1]. Sexual initiation occurs in this age group. The UDHS estimates that 10.3% of adolescents had engaged in their first sexual activity by the age of 15 (Amongin et al., 2020)³.

The low level of education, low employability, and poverty were contributing factors to engagement in sexual encounters, including early marriage, among adolescents in this study area. Less than a quarter of the adolescents (21.8%) attended a secondary level of education. The COVID-19 disruption of schools and poor social and economic standards of living resulted in a high dropout rate among rural adolescents. Children that have been affected include those with

³ <https://www.unicef.org/uganda/reports/unicef-uganda-annual-report-2020>

challenges accessing the learning centres. Girls who tend to be in school have reduced risks of child marriage, teenage pregnancies, and early childbirth. The findings from this research were reported by the Uganda Education Management System and UNICEF, where the proportion of girls who attend secondary education is 21.4% (EMIS, 2015 and UNICEF, 2020)^{4,5}. The majority did not have any source of income. Due to their poor education and social economic status, they cannot access better healthcare opportunities. Further, low employability and redundancy result in high sexual encounters (Patton et al., 2016).

The prevalence of adolescents who had ever had sex in this study was 72.2%. This prevalence is higher than the national estimate of 45.7%(Bukonya, Nakafeero, Ssekamatte, Isabirye, Guwatudde, & Fawzi, 2020), and higher than that in East African countries (Baiden, Panisch, Kim, LaBrenz, Kim, & Onyeaka, 2021; Scott, Wellings, & Lindberg, 2020). The early initiation of sex also predisposes them to multiple sexual partners, which subsequently results in sexually transmitted infections and unintended pregnancies. Adolescents in this community are most affected because of the rural location and minimal access to protective methods of family planning (Bukuluki, Kisaakye, Mwenyango, & Palattiyil, 2021).

The adolescents and their sexual characteristics indicated that ECs are vital for utilization as these teens prepare to utilize other FP methods. The discussion of EC's use and its predisposing, enabling, and reinforcing factors were discussed in the following subsections.

⁴ <https://emis.go.ug/>

⁵ <https://www.unicef.org/uganda/media/9996/file/UNICEF%20Uganda%20Annual%20Report%202020.pdf>

5.3 Predisposing factors to access and use of ECs among adolescents

5.3.1 Emergency contraception use among adolescents

The study results indicated that a few adolescents had used ECs. The low proportions could have been contributed by their low knowledge, and attitude about ECs. Further, issues related to availability and the cost could have contributed to low utilization. The limited utilization was also indicated in the recent demographic and health surveys in Kenya and Tanzania (East Africa) at 0.1% and Uganda at 0% (KDHS, 2014; TDHS, 2015; UDHS, 2016). In Nigeria and Ghana (Western Africa), similar proportions were identified at 0.1% and 0.2%, respectively (GDHS, 2014; NDHS, 2019). Further, in Imo State, Nigeria, 25% of the respondents had ever used ECs (Arisukwu, Igbolekwu, Efugha, Nwogu, Osueke, & Oyeyipo, 2020). A survey at the University of Alabama in Birmingham Pediatric and Adolescent Gynecology Clinic found that 25.6% of adolescents reported the use of ECs (Williams et al., 2021). The low utilization of ECs requires attention since ECs remain the best option to prevent unplanned pregnancies as one prepares to utilize other family planning methods.

Most of the adolescents who have ever used ECs were between 18 and 19 years old. The results are in agreement with a recent study that revealed that older adolescents are more likely to use contraception than young ones (Miller, Smith, & Pugatch, 2020). Older adolescents are likely to have gone through the secondary level of education, with a higher social-economic status and diverse information channels. These could have led to increased utilization since ECs are given at a cost in private health facilities (Arruda et al., 2020).

Additionally, this study found that only 41.7% of the adolescents had used ECs more than twice, which may be due to a lack of knowledge and perceived subpar experiences that the adolescents

had after buying the ECs, which frequently had an impact on sustainability. The results by Rokicki identified that adolescents continued using ECs because they knew the indications, contradictions, and timing, which reduced fears (Rokicki & Merten, 2018). The adolescents' use of ECs was still low in the baseline study. The adolescents could be helped to access ECs through programs that create awareness about EC services.

5.3.2 Adolescents' knowledge about ECs

The study revealed that the knowledge about ECs among this population was low. The low knowledge levels among adolescents in this study may have resulted from low sensitization about the EC product. Since the ECs are sold in private facilities and are commonly demand-driven, there are always information gaps about the available products. A multi-country survey in SSA found that the adolescents' knowledge of ECs ranged from 2% to 66% (Palermo, Bleck, & Westley, 2014). Low levels of knowledge were also revealed in Nigeria, where only 12.8% had ever heard about ECS (Babatunde et al., 2016; Onasoga et al., 2016). In Thiruvavarur, India, 24% of adolescent students heard about ECs (Davis, Sarasveni, Krishnan, Bhat, & Kodali, 2020). This study found that adolescents did not know the right timing of the administration of ECs after sex, which is crucial to their effectiveness. Poor timing of administration results in EC medicine failure, which is a knowledge gap. Similar findings were revealed in Thiruvavarur, India, where only 42% were aware of the timing (Davis et al., 2020). The vast majority of Canadian adolescents have heard about ECs, though most of them do not know the period of their effectiveness (Chaumont & Foster, 2017). Prompt utilization could result in fewer teenage pregnancies; therefore, awareness about the timing needs major information dissemination to adolescents.

The study revealed that older adolescents were two times more likely to be knowledgeable than younger ones. Davis and colleagues in research in India agree that older adolescents were likely to know about ECs (Davis et al., 2020). The education level, level of sexual activity, and past use of ECs could be reasons why older adolescents know more about ECs. Education contributes to the understanding and accessibility of health information on different media channels. Because of the high school dropout rate in rural areas, such opportunities are missed. The findings are in agreement with a study in Turkey that identified that 85% of the adolescents who are mostly school-going know ECs (O'Neil, Aldanmaz, & Altuntaş, 2022). The findings by Asut and colleagues that investigated EC use among Congolese refugee girls in Uganda found that these girls did not know about ECs, emanating from their vulnerability levels in accessing education (Asut et al., 2018).

The research revealed that most of the adolescents who knew ECs were sexually active. Adolescents who are sexually active try to find solutions to avoid unintended pregnancies, and therefore will try to look for more information. The findings are in agreement with those in Russia: adolescents who had had sex were more knowledgeable than those who hadn't (Bolshakova, Galimov, Unger, Rohrbach, & Sussman, 2020). Since most out-of-school adolescents in Uganda are married or sexually active, there is a need to disseminate health information in different languages using different approaches so that the rural communities will be more aware of EC services.

Knowledge about ECs often results in utilization among adolescents (Williams et al., 2021). Efforts need to be put in place to help the rural adolescent populations improve their knowledge about the EC service because of its effectiveness in preventing unplanned pregnancies.

5.3.3 Adolescents' attitude towards ECs use

The study indicated that only 21.2% of the adolescents had a positive attitude towards EC use. Adolescents' attitudes affect their ability to uptake EC services. Perceptions about stigma, a lack of confidentiality, and a lack of understanding about the efficacy, safety, and effectiveness of the medicine result in a negative attitude towards its use (Heller et al., 2019). In Thiruvavur, India, 59% of adolescents have a negative attitude (Davis et al., 2020). The adolescents fear that when they seek ECs services, the community will judge them as being promiscuous. The research findings are in agreement with those by Lee, who found that repeated users were taken to be promiscuous (Lee et al., 2012).

The adolescents expressed that 'ECs could be the cause of cancer and infertility' as some of the side effects. Similar findings were identified by Rockicki in Ghana and Cameron but also in the Imo state of Nigeria (Arisukwu et al., 2020; Rokicki & Merten, 2018). The adolescents perceive that ECs have such complications; they won't utilize them. On the other hand, adolescents who perceived ECs to be safe were more likely to use them (Heller et al., 2019).

In this study, more than half of the adolescents who had a negative attitude were from rural areas (53.1%). The findings are in agreement with the results by Darteh and colleagues, who identified that negative attitudes among rural adolescents were attributed to low social-cultural status in Ghana and Kenya (Darteh, Dickson, & Amu, 2020). The rural communities are described as having low education status, but socially and culturally, they understand the EC services as foreign, so they rather want to use their natural methods.

The attitude towards ECs among adolescents is significantly related to utilization. Adolescents need evidence of the indications, contraindications, and possible side effects of ECs. Efforts right

from the grassroots to the national level need to foster a positive attitude among adolescents to improve EC use.

5.4 Enabling factors to EC access and use among adolescents

5.4.1 Service providers' knowledge about ECs provision to the adolescents

The study indicated that only 26.7% of the service providers were knowledgeable about ECs provision to adolescents. Less than half had received the training about EC service provision to adolescents. Similar findings revealed that 72.1% of the service providers had no training about ECs in Baghdad Al-Karkh (Tawfeeq, Abaas, & Abdulkareem, 2020). The lack of knowledge was mainly on the different types of ECs, their effectiveness, indications, and contraindications for use among adolescents. The results are also in agreement with findings from Ehrle in Nigeria and El-Mowafi in Jordan, who found that it was hard for health workers to differentiate between ECs and other modern contraception on the market (Ehrle & Sarker, 2011; El-Mowafi & Foster, 2020). Another study that evidenced similar findings was by Collins in Australia and Hernandez in Kinshasa, Democratic Republic of Congo, who found that there was an information gap among service providers about the use of ECs, their effectiveness, side effects, and timeliness (Collins, Schneider, & Moles, 2018; Hernandez et al., 2017). Because knowledge about ECs shapes attitudes, confidence, and practice, there should be a framework to create awareness about ECs use and access by adolescents among service providers.

The younger service providers were more knowledgeable. Young service providers have been exposed to ECs because they recently finalized their training and may have used them. Further, the younger service providers are likely to have more experience searching for the upcoming methods of family planning in this technological development. The findings in Kampala, the

capital of Uganda, found that 80% of the younger service providers had knowledge (Nalwadda et al., 2010). Kampala as a city is expected to have service providers more informed than those in very rural areas like Bundibugyo. Because older service providers are predominantly in rural settings and work in private facilities as part of their retirement, there is a need to raise awareness among them as they are the most likely staff in contact with the adolescents in these communities.

5.4.2 Service providers' attitude towards ECs provision to adolescents

The attitude of service providers affects the use of ECs by adolescents (Chakraborty et al., 2019). The research findings indicated that only 14.0% of the service providers had a positive attitude toward access and use of ECs among adolescents. This finding agrees with results by Dawit in Addis Ababa, Ethiopia, which identified that service providers had a negative subjective attitude toward adolescent girls and that EC use encourages promiscuity (Dawit, Van Der Merwe, & Smith, 2010). Due to the negative attitude, the adolescents were never counseled, and there was no health worker-adolescent relationship during the process of EC service utilization. Yet, the attitude among service providers is very vital in providing ECs services to adolescents.

Service providers with less than one year of experience had a positive attitude. Younger service providers may have used ECs but also understand the complications that teens go through because they are close in age (Dawson et al., 2015; Larke et al., 2010). The younger service providers are likely to be approached by adolescents as mates.

The key informants described the attitude of the service providers as negative since this is a rural area that has cultural attributes—that adolescents who use the emergency services will keep being promiscuous. The health providers' social norms, cultural attributes, and attitudes seem to affect the quality of service provision (Mayhew, Osei, & Bajos, 2013). Similar findings were

identified in Nepal, where urban service providers had generally supportive ideas but rural pharmacists had more culturally conservative attitudes (Balakumar, 2013). More evidence reveals that 65% were willing to provide ECs to women in need, and only 13% would provide them to minors (Ehrle & Sarker, 2011). For the above reason, most of them are against ECs being part of OTC drugs (Khan et al., 2014; Lee et al., 2012). Studies found that service providers reported hesitancy in the provision of ECs to adolescents because of their fear of being judged by the community as the ones promoting sexual behaviors among teens. This is a profound bias in adolescents' utilization of ECs (Savage-Oyekunle & Nienaber, 2017; Whitaker et al., 2016).

During the discussion with the service providers, they expressed fear that the community would misinterpret and judge them. Most service providers would shy away from giving such services to adolescents (Tilahun et al., 2012). Similar findings were reported in Nigeria, where the service providers reported that they could not give the ECs to the adolescents because of a fear of being judged (Savage-Oyekunle & Nienaber, 2017).

Qualitative findings revealed that most service providers did not give adolescents the chance to ask questions. Similar findings were identified in the UK, where service providers discouraged adolescents from taking ECs (Faller et al., 2020; Pooke, 2019). This contributed to the negative attitude among adolescents. Yet, recent exploratory research revealed that facilities can improve global health as long as attitudes and competencies are fostered to improve their practices.

5.4.3 Service providers' practice on providing ECs to adolescents

Results from this research indicated that most of the service providers did not feel comfortable giving ECs to adolescents. This could possibly be because of their limited knowledge and poor

attitude. The mystery clients identified that the service providers neglected them, as they expressed concern about emergency contraception. This neglect was also observed in the findings by Whitaker, who found that the neglect of the service providers hindered adolescents from repeated use of ECS in a systematic review (Whitaker et al., 2016). The results are in agreement with findings by Ehrle & Sarker in Nigeria, Khan DIXT & Bhatnagarin in India, and Tawfeeq in Baghdad, but they were also observed by Lee & colleagues, who identified that, though some service providers gave ECs to women in need, a few would give them to minors (Ehrle & Sarker, 2011; Khan et al., 2014; Lee et al., 2012); (Tawfeeq, Abaas, & Abdulkareem, 2020). Most studies have found that the majority of the ECs were securely locked, and permission would be granted to provide these to the underage population in Australia and the US (Collins, Schneider, & Moles, 2018; Haeger, Lamme, & Cleland, 2018). There is a need to ensure free access to ECs for adolescents. Since EC is described as an over-the-counter drug, service providers need to help adolescents find easy means to obtain ECs.

The adolescents who are married got fair treatment compared to the unmarried adolescents. This was a serious hindrance to the access and use of ECs among sexually active adolescents. In contrast to unmarried adolescents, Schwandt and colleagues' study (Schwandt, Speizer, & Corroon, 2017). found a clear provision of ECs for married adolescents only.

Privacy and confidentiality

The issues of privacy and confidentiality are part of the quality of care. This is mostly because the space in these private facilities is so small and always surrounded by other shops. The results are in agreement with the findings by Dawit in Addis Ababa, Ethiopia, who found that there was no privacy or confidentiality at the EC service centres (Dawit, Van Der Merwe, & Smith, 2010).

Also, the conservativeness and loudness of some health workers deter adolescents from accessing EC services. ECs are provided in private facilities that give drugs without a prescription. This is because adolescents feel comfortable having private consultations.

5.4.4 Availability, accessibility, and affordability of ECs to the adolescents

Most of the EC services are obtained from private facilities because they are OTC. The government-run adolescent corners are supposed to provide ECs, but they are always out of stock (WHO, 2016). Due to the information gap, which the VHTs could close, and some community awareness mobilization, it was unlikely that the adolescents were aware that ECs could be obtained from private facilities. The government needs to stock ECs for adolescents so they can be part of the ASRHS package.

Most adolescents and mystery clients reported that the cost of ECs was high. In this scenario, the purchase of the medicines was dependent on the service provider. Therefore, the cost is tagged according to purchase and indirect costs, including transport and license payments (Darroch et al., 2016; Nara, Banura, & Foster, 2020). Some service providers explained that the pharmacies where they purchase these medicines are very far away, and most times the terrain, weather, and accessibility are very difficult. The systematic review revealed one of the most critical pointers to EC use was cost (Atkins et al., 2022). This is likely to affect adolescents since most of them don't have any source of income. If public health facilities had stocks of ECs, then adolescents could obtain them freely and without any cost. Further, private facilities could provide ECS to adolescents at a subsidized price. This would greatly improve access to and use of ECs among adolescents.

Only half (50%) of the facilities always have ECs in stock. This means that adolescents who come to access ECs have unmet needs because of a lack of their availability (O'Neil, Aldanmaz,

& Altuntaş, 2022). The mystery clients and the adolescents who had been at some private facilities as well as government health facilities identified that ECs were out of stock. These results agree with findings in Turkey, where 53.8% of the service points stated that ECs were not available (O'Neil, Aldanmaz, & Altuntaş, 2022). A recent systematic review revealed that getting the ECs was highly dependent on availability and convenience (Atkins et al., 2022). Limited availability of the ECs reduces access and use among adolescents. Therefore, the government needs to supply the ECs to the adolescent corners so that they can easily be accessed.

5.5 Reinforcing factors to access and use of ECs among adolescents

5.5.1 VHTs knowledge about EC

The VHTs did not have knowledge about EC provision for adolescents. They had never received any training concerning EC use among adolescents (Byamugisha, 2007). The training of VHTs is paramount because they bridge the gap between the service centers and the communities.

VHTs did not know where to get medicine, its cost, or its availability. The qualitative findings show that the VHTs are unaware of the facilities that provide ECs, and Akamike and colleagues have also identified cost and availability issues (Akamike et al., 2020; McKenzie-Mohr, 2011). There was a need to provide information to the VHTs on the different types of ECs on the market, the service centres as well as the costs.

5.5.2 Village health team members' perceptions about EC access and use among adolescents

The VHTs never visited adolescents. They felt that visiting the adolescents and telling them about EC increased promiscuity. The findings agree with findings in Somalia, in a refugee setting where the culture did not appreciate ECs because of perceived promiscuity (Gure, Dahir,

Yusuf, & Foster, 2016). Yet visiting the adolescent improves the bond between VHTs and adolescents, and strategies need to be put in place to improve this strategy for sustainable EC services.

The study further revealed that VHTs never encouraged, counseled, or motivated adolescents to access and use ECs. The social-cultural factors related to the use of modern contraception among adolescents could not allow VHTs to provide support. Chandra-Mouli found comparable findings in a systematic review of adolescents and contraception use in low- and middle-income nations (Chandra-Mouli, McCarraher, Phillips, Williamson, & Hainsworth, 2014). There was a need to provide awareness to the VHTS so that they could support the adolescent with an informed mind.

The VHTs never knew where to refer adolescents for such services. Such limitations deterred VHTs from fully supporting the referral of adolescents to access and use ECs. This is in line with findings by Canavarro and colleagues, who identified that there was no community integrative service to support adolescents to utilize RHs, including ECs (Canavarro, Silva, Diniz, Pereira, Koller, & Pires, 2020). More strategies to bridge the communication gap between private and public service providers and VHTs need to be explored. Communication about the new EC brands and the cost needs to be done by service providers and VHTs.

5.5.3 EC Policies and guidelines for the health service centres

Most of the facilities never had any guidelines for the provision of ECs to adolescents. The government never supported the EC services in private facilities, whereas the policy mandates support on this critical matter (UNICEF, 2016; WHO, 2022a). It was found that the service providers, especially those from private facilities, were not provided with updated guidelines and protocols for ECs. It is important to note that there are dynamic changes that take place in the

world of medicine. Most of the key informants at the Ministry of Health agreed that there is minimal support given to private service providers, especially when it comes to access to and use of emergency contraception among adolescents. This could be the reason why service providers, especially private-owned ones, have misinformation about the use and effectiveness of these interventions because they do not have to guide protocol use among adolescents (Collins, Schneider, & Moles, 2018).

There is a need to create and strengthen the link between the health facilities, the communities, and the community health workforce from the central government. Policy guidelines and other supporting documents developed by family planning bodies and organizations need to include the private sector in information dissemination. This will therefore foster access to and utilization of ECs among adolescents, thereby reducing unintended pregnancies.

5.6 The effect of the RHEI on the predisposing factors to ECs access and use among adolescents

5.6.1 The effect of the RHE intervention on adolescents' use of ECs

Overall, use increased from 11% to 53%. The adolescent now knew where the EC services are provided; they were encouraged by both service providers and VHTs. This study involved out-of-school adolescents and agreed with the findings of a randomized controlled trial. The study was carried out among school-going children in Tanzania and South Africa and improved the utilization of ECs among adolescents (Decker & Montagu, 2007).

Because of the intervention, urban adolescents were two times more likely to use ECs than rural ones. The availability of EC stock, accessibility, and sexual health programs in urban settings could have improved EC use among urban adolescents. This is in agreement with findings by

Wight, who found that easy accessibility and availability of ECs increased the utilization of RHS (Wight, Plummer, & Ross, 2012). Similar findings were identified in the systematic review of the evidence of the use of contraception in SSA (J. Smith, 2020). In Kenya and Nigeria, similar findings were identified about repeated use among urban adolescents (Chin-Quee et al., 2014). Adolescents in rural communities need more access to ECs through community resource personnel.

The likelihood increased among sexually active adolescents as a result of the intervention. Because they fear getting pregnant, the adolescents seemed to have gotten critical and timely information for their unmet needs. This was confirmed by a systematic review by Atkins where the adolescents in the intervention groups were able to use ECs (Atkins et al., 2022).

5.6.2 The effect of RHEI on the adolescents' knowledge

The adolescents' knowledge was able to improve because of the intervention. This in fact increased from 17% to 87%, compared to a slight increase in the control group (13% to 28%). The research carried out in Nigeria identified that knowledge among adolescents increased the effectiveness of the life skills intervention, which was able to reduce pregnancy among adolescents in Nigeria (Kan et al., 2012). More evidence was observed among adolescents in an intervention study of health programs in Tanzania. The results were indicative that adolescents' knowledge about ECs improved (Larke et al., 2010; Obasi et al., 2006). The approach of training the service providers and VHTs clearly had a double impact on the adolescents' knowledge.

Urban adolescents were two times more likely to have knowledge than rural ones. This was observed in the study, where limited channels of information in rural settings reduced knowledge

among adolescents (Gaughran & Asgary, 2014). Rural communities have few technological sources of information that could limit their knowledge. There is a need for the accessibility of other information channels, including social media and technology.

Adolescents who had used ECs were more likely to be knowledgeable about the intervention than the control group. The adolescents who have used ECs understood their rights, and this is in agreement with studies in South Africa, where adolescents understood their rights to access and use RHS (Hoopes, Chandra-Mouli, Steyn, Shilubane, & Pleaner, 2015). Adolescents who have prior information will increase their understanding when they get exposed to similar information. Correct information among adolescents about ECs needs to be sustainably provided to improve utilization.

Sexually active adolescents were five times more likely to be knowledgeable than those who had never had sexual encounters. A similar quasi-experimental design with an intention to delay second births among adolescent mothers (Lewis et al., 2012). This is because active adolescents get more interested in getting knowledge because they don't want to get pregnant and its related complications. The knowledge of contraception increased in sexually active adolescents in the intervention group compared to the control group. More interventions to reduce pregnancies need to be employed among sexually active adolescents.

5.6.3 The effect of the RHEI on the adolescents' attitude towards ECs

The attitude increased from 27% to 70%. The adolescents in the intervention group were sixteen times more likely to have a positive attitude towards EC use as compared to those in the control group. The adolescents were able to receive support from the VHTs and service providers. The concerns about the side effects, myths, and misconceptions were answered. The results are in

agreement with evidence from other researchers around the globe that service providers' and VHTs' positive attitudes improved adolescents' attitudes (Hoopes et al., 2015; J. Smith, 2020). The perception of the positive impact of EC use needs to be strengthened so that adolescents can use the service as they prepare for other routine methods.

Married adolescents were more likely to have a positive attitude toward EC use compared to unmarried ones. Married adolescent has a high likelihood of frequent sex; their attitude improved as a result of increased knowledge and attitude obtained through RHEI. Erulkar identified consistent findings in Ethiopia, where his intervention led to an increase in the use of contraception among married adolescents (Erulkar & Tamrat, 2014). Therefore, it is imperative to use routine visits by married and pregnant adolescents like ANC, PNC, and counseling to health educate them about ECs as an effective method of FP.

The sexually active adolescents had a positive attitude toward ECs as compared to those who were not sexually active. Similar results were observed among the sexually active adolescents in Kenya and Nigeria; that they were able to develop a positive attitude (Chin-Quee et al., 2014). This still comes with interest, as it would be helpful to know methods that can help reduce pregnancies among the high-risk population.

5.6.4 The effect of the RHEI on the knowledge, attitude, confidence, and practice of service providers

The workforce capacity to handle RHS is paramount to the utilization of the services among adolescents (Dawson et al., 2015). The approach of the training included scenarios about the complications that a pregnant adolescent goes through. Using evidence-based research, facilitators and the district health team explained to the service providers the myths and misconceptions related to the provision of ECs to adolescents. The different types of approaches

used during the training (interactive presentations, group discussion, and case scenarios) resulted in an increase in knowledge, attitude, confidence, and practices among service providers.

As far as service providers' knowledge is concerned, Bibi and colleagues discovered comparable results in Pakistan. The study found a positive association between the intervention and the outcome, which was knowledge and use (Bibi, Abbasi, Awan, Qazi, & Ashfaq, 2013). The government needs to include both private and public service providers to get such comprehensive training to affect the quality delivery of ECs.

Attitude and confidence improved in this study. The involvement of the district officials in the training, plus the return demonstration, also increases the attitude. In Tanzania, the randomized control trial found that trained service providers improved their attitudes and stopped being judgmental of adolescents (Larke et al., 2010). Similar results were identified in Ghana and Burkina Faso, which revealed that service providers who had good attitudes were able to deliver quality EC services to adolescents (Mayhew, Osei, & Bajos, 2013). Policymakers and program implementors need to increase attitude and confidence by involving the technical team right from the grassroot level so that sustainability of service delivery is felt.

Practices improved. This information was obtained via the mystery clients and adolescents who went to access ECs. Further, technical support by the district health team improved their practice within the first six months post-intervention. Knowledge, attitude, and confidence increased with practice. The results agree with the findings identified in India (Kishore, Misro, & Nandan, 2010). Mayhew and his colleagues emphasized the importance of having positive attitudes when it comes to providing high-quality services (Mayhew, Osei, & Bajos, 2013). Continuous medical education among service providers needs to be strengthened, especially concerning the upcoming

ECs brands on the market. This will keep their confidence, knowledge, and attitude high, which in turn will improve their practice.

Privacy and confidentiality among the service providers were paramount in facilitating access to ECs among adolescents. The study findings indicated that there was observed privacy and confidentiality among the service providers in the intervention group. Similar results were observed in Kenya, where franchise clinics were used and there was an increase in access to RHS among adolescents (Decker & Montagu, 2007).

There is evidence that RHEI can improve the health workforce's knowledge, attitude, and practices. Kestler, in his research, pointed out that related policies need to be implemented to foster technical support through training, workshops, and continuous medical education to improve the provision of ECs and other RHS to adolescents (Kestler & Ramirez, 2004).

5.6.5 The effect of RHEI on reinforcing factors towards EC access and use

Engagement of the community with an aim to improve EC services for adolescents is a vital strategy (McKenzie-Mohr, 2011). In this intervention study, VHTs' knowledge improved. The discussions and case scenarios used during the training increased my knowledge. Further, the training team was well-versed in the community approach. The approach is in line with WHO strategies to integrate the community health strategy to improve ADRHs, including EC access and use (WHO, 2022a).

VHTs' support for adolescents was improved. The VHTs were able to explain to the adolescents the difficulties that pregnancy can result in, such as abortion, low-weight births, mental breakdowns, and suicide. This improved their attitude and willingness to support adolescents. By also telling them more about the indications, contraindications, and effectiveness, their attitude improved. The findings support Ahinkora and colleagues' recommendation that community

collaboration is necessary to increase adolescent contraceptive use in their systematic review of what can best work (Ahinkorah et al., 2020). similar approach was employed with the aim of improving maternal and child health. Results indicated that VHT support increased among the intervention group (Prost et al., 2013). Evidence also indicates that peer VHTs bring the best results as far as support is concerned (Mbonye, Bygbjerg, & Magnussen, 2007) .

The fact that VHTs were able to refer adolescents served as proof of this. The VHTs knew where to get the ECs, so it was easy for them to refer adolescents. The cost was also known to them, so they could inform the adolescents of the range. The awareness of VHTs aided in gaining full support for referring the adolescents. Similar results that increase motivation were identified in Kenya in an attempt to motivate and strengthen VHTs to support RHS (Kaler & Watkins, 2001), as referenced in a systematic review (Dawson et al., 2015).

VHTs were able to follow up with adolescents. VHTs already knew the households of the adolescents, so it was always easy to follow them up. They were now friendly and understood the social-cultural diversity vs. health needs of the adolescents(Chandra-Mouli & Akwara, 2020).

5.7. Summary of chapter five

There is evidence that the reproductive health education intervention could improve the adolescents' predisposing, enabling, and reinforcing factors. As discussed in the objectives, there is still low utilization of ECs among adolescents and their related factors in rural areas of Uganda. These factors were evidently improved by RHEI. There is a need to sustain information and motivation among both private and public service providers, as well as VHTs. This will increase the utilization of ECs and other ASHRs, thus improving their health and achieving Uganda Vision 2040 and SDG 3.

CHAPTER SIX

6.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This is the final chapter of this study, which gives a summary of findings about each objective. In this regard, the summary included the baseline, intervention, and post-intervention findings. The deductions from these findings are pertinent to the contributions among policymakers and key opinion leaders in anticipation of improving emergency contraception service delivery among adolescents in Uganda. Finally, the chapter gives suggestions for further research.

6.2 Summary of findings

1. The PRECEDE PROCEED model has supported this research. The intervention evidently improved access to and use of emergency contraception among adolescents. The study involved 349 adolescents. Initial findings reveal that only 14.3% of sexually active adolescents had used ECs. Most (85.1%) of the adolescents were not knowledgeable about ECs. The majority (78.8%) of the adolescents had a negative attitude towards EC use. Service providers' knowledge, attitude, confidence, and practice were very low. Most (73.3%) of the service providers had limited knowledge of the use of ECs. Their attitude was also negative (86.0%), and most of them did not have the necessary confidence to provide ECs to adolescents (74.4%). Therefore, a reproductive health education intervention was introduced as follows:

1. The service providers from pharmacies, drug shops, and government facilities that provide emergency contraception over the counter were trained.

2. There was a pre- and post-test given to the service providers during the training.
3. The members of the village health team in the intervention group were also trained.
4. The mystery clients followed up on the effect of the educational intervention on the service providers and the village health team members. This was between three- and six-months post-intervention.
5. Adolescents were also followed up three and six months after the intervention to evaluate the effect of the RHEI on their knowledge and attitudes towards ECs.

The prevalence of EC use among adolescents increased from 13.0% to 58.4% in the intervention group, while there was a slight increase from 16.0% to 26.3% in the control group. The adolescents in the intervention group had 12 and 16 times the odds of being knowledgeable and having a positive attitude about ECs compared to the control group. Among service providers, the knowledge level in the intervention group increased from 23.9 percent to 89.1 percent. Attitude increased from 17.4% to 80.1%. confidence increased from 23.9% to 97.8%. The mystery clients were able to identify that the quality of practice among the service providers had improved. Moreover, the village health team members were also able to support and refer adolescents to facilities that provide ECs in the intervention group as compared to the control group.

6.3 Conclusion

The multifaceted RHEI demonstrated an excellent approach to improving knowledge, attitude, and practices among the target audience. Training service providers improved the quality of health care provision. Training village health team members increased support, referral, and

follow-up among adolescents. There was also a neutralizing effect on the social and cultural factors that hindered adolescents from accessing and using ECs and related services.

Although the service providers and the village health teams can be handled synergistically, there is a need for the service providers to receive more comprehensive support supervision and acquire policies and updated guidelines on the provision of adolescent reproductive health services, especially in private facilities.

The theories and their implications

The research used multi-synergistic approaches to attain a high impact. This increased its effectiveness. The choice of the health facilities, the village health team members, and follow-up mechanisms all were integrated to achieve the necessary effectiveness. The multiple theories included PRECEDE PROCEED, and HBM as the most appropriate for service provision as well as the community approach. To mention here, the intervention included training service providers and VHTs; the health facilities had onsite adolescent support, education, and counseling, the VHTs had community counseling and follow-ups, and the mystery clients had follow-ups on the effect of the intervention. Other theories/models included the midrange theory, the community action model the synergistic interactive approach and the organization theory.



6.4 Contribution to knowledge

There was a prior in-depth search of the literature on adolescent sexual behaviors and the factors associated with the access and use of ECs among adolescents. This gave the researcher a strong background to understand the problem.

Supervisors and the main researcher had several clarifying discussions on the need to carry out research about EC access and use among adolescents. The process of getting approvals from the research ethics committees at Mbarara University, the Director of Health Services at the Ministry of Health, and the National Council of Science and Technology gave the research more ethical direction. Further, discussions with the key informants at the national level, the District Health Officers of Kamwenge and Bundibugyo districts, and the assistant DHOs were a great opportunity to learn.

This research, being a community-based study, unveiled grassroots information while interacting with the community, including the VHT coordinators and the adolescents. I used community entry, mobilization, and engagement to identify the most pressing problems of rural adolescents while they access and use EC services. The findings from this study were used to construct the Reproductive Health Education Intervention and how it was implemented. This is the first study to adopt an intervention to train private service providers and village health team members on the access and use of emergency contraception among adolescents in Uganda. It has proven to be an effective way to increase EC service provision to adolescents by improving predisposing, enabling, and reinforcing factors.

1. The intervention strategy has evidenced an effect on the knowledge, attitude, competencies, and practices among the service providers. It has strengthened the relationship between the village health team members and the adolescents. This is one of the new approaches that can be used at the Ministry of Health while integrating adolescent sexual and reproductive health services into the communities for high impact.
2. The PRECEDE PROCEED model is an exceptional model to use while trying to understand individual, health facility, and community-related factors. This model fits well in the Donabedian model, which also looks at the inputs, processes, outputs, outcomes, and impact. The approaches are relevant to mindset and critical change-making strategies.

6.5 Recommendations

The recommendations are classified by practice and future research.

6.5.1 Practice

1. Based on the research findings, the model employed and its effect on access and use of ECs among adolescents, the sexual and reproductive health department at the ministry of health needs to ensure that service providers who provide ECs are trained. Further these service providers need to be monitored on the quality-of-service provision of ECs to adolescents.
2. Since this educational intervention model creates a window of opportunity for adolescents to also utilize other methods of family planning, the approach should be rolled out in different parts of the country, so that all adolescents both out- and in-school can be supported to make informed decisions and choices about family planning. The model in this research can be

rolled out to other areas including urban settings so that service providers in these areas can also utilize the trainings and thus provide quality and effective adolescent sexual and reproductive health services, including emergency contraception.

3. Community actors, including village health team (VHT) members, need to be included in the trainings that take place at health facilities, as these VHT members bridge the gap between the community and health facilities. This study demonstrated that VHTs are effective in educating, counselling, referring adolescents to access SRH services.
4. The model used in this research can be used by other non - Governmental organisation and donor agencies including UNFPA, UNICEF, UNDP, to improve the utilization of modern family planning methods including emergency contraception among adolescents.

6.5.2 Future research

1. Future research needs to be carried out among adolescents in urban settings to find out what diverse outcomes can be obtained. Researchers would be interested to find out if there was a comparison between in-school and out of school adolescents as far as access to and use of ECs are concerned. A similar study can be carried out in urban areas since unintended pregnancies and their complications apply to all Ugandan adolescents. Further, parents were not involved in the study, though they could also have benefited from the research by understanding what changes happen to their children. Future research can tailor ways to involve parents in EC use among adolescents.
2. The men were not involved. This research could have informed them that adolescents go through a lot to access and use ECs after a sexual encounter. Some in-depth research can examine men's opinions on the access and use of ECs among adolescents.

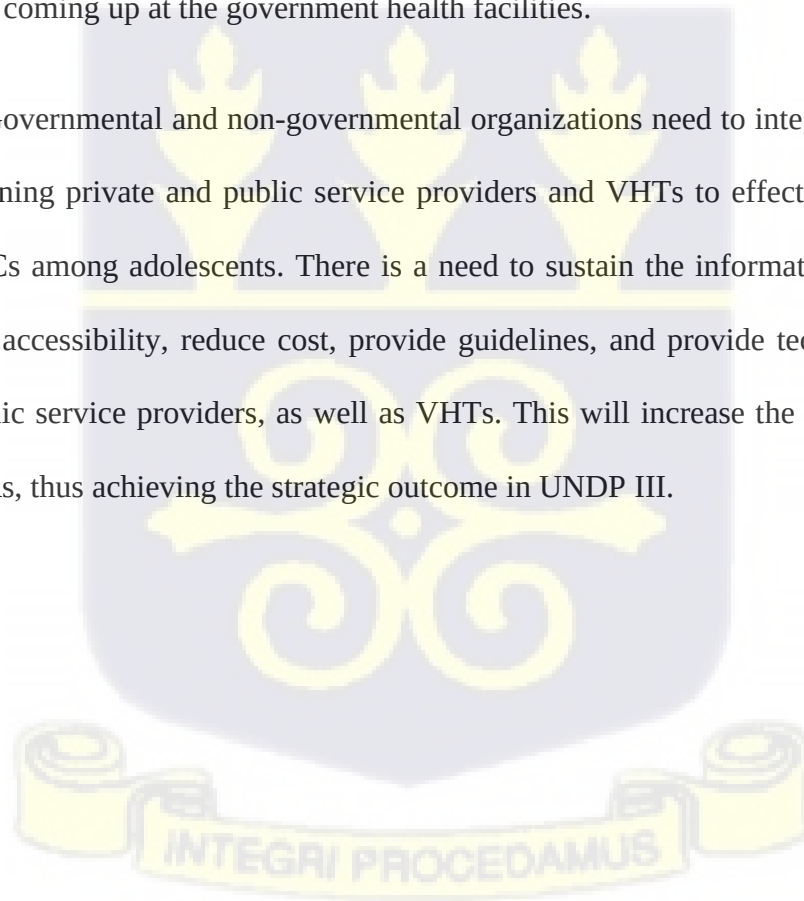
Challenges identified during the research process.

There was political tension during the baseline assessment. This was because Bundibugyo is near the border with the Republic of Congo, and the spillover from the war covered this area.

Further, being a mountainous area, the November/December rains made traveling very difficult. In fact, the research team spent a lot of time walking from house to house, but also from one facility to another, which was a challenge.

Finally, the VHTs had competing priorities, including taking care of their families and even other health programs coming up at the government health facilities.

In conclusion, Governmental and non-governmental organizations need to integrate a synergistic approach of training private and public service providers and VHTs to effectively improve the utilization of ECs among adolescents. There is a need to sustain the information, improve ECs availability and accessibility, reduce cost, provide guidelines, and provide technical support to private and public service providers, as well as VHTs. This will increase the utilization of ECs and other ASHRs, thus achieving the strategic outcome in UNDP III.



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Appendix 1: Questionnaire for adolescents
On use and access to emergency contraception in Tooro sub-region, Uganda

Dear respondent,

This instrument intends to measure the use and access to emergency contraception in Ankole region, Uganda. The intention of this tool is to measure group responses not individual responses; therefore, your name will not be written on this questionnaire. The code shall be used as an identifier, as observed on the first page. Your responses are very vital because they will contribute to the understanding of the use and access of emergency contraception among adolescents. In this tool, there is no right or wrong answer. It is therefore desired that you be as truthful and honest as possible. The questionnaire will take a maximum of 20 minutes, and completing this questionnaire is voluntary. The information provided will be treated with maximum confidentiality. Completing the questionnaire is very vital to getting consistent meaningful results. Thank you for your willingness to consent and participate in this research.

SECTION A: DEMOGRAPHIC CHARACTERISTICS

Please kindly tick the following

1. Age at last birthdayyears
2. Ethnic origin: Munyankole [] Muganda [] Mutooro [] Mukonjo [] Mwamba []
3. Educational attainment: None [] Primary [] secondary [] Post secondary []
4. Occupation: None [] civil servant [] self-employed [] trader [], Others specify []
5. Marital status: Married [] Not Married []
6. Religion: Catholic [] Anglican [] Muslim [] Pentecostal [] Traditionalist []
Others (specify) []
7. Residence: Rural [], Uurban []
8. When was your menarche years

SECTION B: PREDISPOSING FACTORS (THIS MAIN VARIABLE HAS SUB-VARIABLES RELATED TO PERSONAL-LEVEL DISPOSITION)

SUB SECTION B 1: INDIVIDUAL FACTORS

1. Have you ever had sex? Yes [] No [] (if yes)
2. At what age was your first time you have sex years?
3. Have you had sex in the past 2 months: Yes [] No []
4. Have you had sex in the past 12 months: Yes [] No []
5. With how many partners? One [] Two [] more than two []

SUB SECTION B2: EC USE AMONG ADOLESCENTS

1. Have you ever used ECs Yes [] No []
2. At what age did you first use ECsyears
3. How many times did you use ECs: 1 [], 2 [], more than 2 []
4. Do you still use ECs: Yes [] No []

5. Have you used any other method of modern family planning: Yes [] No []
6. Used methods: None [], Pills [], Injectorplan [], IUD [], Condoms [], others []
7. Still using Modern family planning method: Yes [] No []

SUB-SECTION B3: KNOWLEDGE OF EMERGENCY CONTRACEPTION AMONG ADOLESCENTS

For this section, you are required to tick only one most appropriate answer per question.

1. Have you ever heard about ECs: Yes [] No []
2. The most suitable definition of emergency contraception include; Are both traditional and modern methods to prevent pregnancy []; These are traditional methods of family planning [] These are a form of modern contraception that is taken as an emergency after unplanned/unintended pregnancy [], Don't know []
3. Emergency contraception medicine include levonogestrel [] Depoprovera [] monthly pill [] injectorplan condom [] Don't know []
4. Emergency contraception are mostly effective at; reducing HIV transmission [] preventing unwanted pregnancy [] preventing conditions like hypertension and cancer [] Don't know []
5. The appropriate time to take emergency contraception is; Within the 1st 5 days []; after 5 days after sex [] Any time within a month [] Don't know []

SUB-SECTION B4: ATTITUDE ABOUT USE AND ACCESS OF EMERGENCY CONTRACEPTION AMONG ADOLESCENTS

A number of issues emanate from attitudes that an adolescents have over the use and access to emergency contraception. For this section, you are required to tick the most appropriate option with regard to the subject matter. Please note that SA = Strongly Agree, A=Agree, D=Disagree, SD =strongly disagree.

Sn	Statement of consideration	SA	A	D	SD
1	I expect that ECs should be given freely like condoms				
2	I am careful to accept the use of ECs because there are claims of cancers as adverse outcomes				
3	As an Adolescents I am apprehensive about discussing ECs with their peers				
4	I am willing to take ECs				
5	I don't fear the device of ECs (a pill and IUD)				
6	Adolescents who take ECs are immoral				
7	I prefer taking ECs than other any other method				
8	Adolescents should be discouraged from taking ECs				
9	It's not a sine to take ECs				
10	My religion doesn't allow me to take ECs				
11	Our community doesn't allow us to take ECs				

12	Adolescents don't know where to get ECs				
13	ECs are supposed to be taken by only married people including adolescents				

SECTION C: REINFORCING FACTORS OF PERSONAL SUPPORT RECEIVED FROM SIGNIFICANT OTHERS INCLUDING SERVICE PROVIDERS

The reinforcing factors include the attitudes and practices from service providers but also obtaining support. The service providers enhance access to ECs. Tick the most appropriate answer per question concerning the service provider.

1. We are not aware where the EC medicines are found Yes [] No []
2. When you receive the EC from the service provider, do you need help to read the instructions about the instructions written on the label (All the responses apply. Tick Yes or No)
 - a) Regarding when to take EC drug Yes [] No []
 - b) Regarding how to take EC drug Yes [] No []
 - c) Regarding the condition for which ECS have been given Yes [] No []
3. When you get the medicine from the service provider, are you able to follow instructions without getting confused Yes [] No []
4. How does knowing what is written on the medicine as instructions help you
 - a) Does not help me at all because I don't understand []
 - b) I can follow instruction and take medicine to prevent pregnancy []
 - c) Service providers helping me to know and follow instructions help me to be in control of what I should do to protect myself []
5. Service providers encourage adolescents to take ECs Yes [] No []
6. The service providers encourages the adolescents to take ECs as many times as possible Yes [] No []
7. I access the ECs without any prescription: Yes [] No []

SECTION D: ENABLING FACTORS OF INSTITUTIONAL RESOURCE SUPPORT, AVAILABLE EC AND POLICY ISSUES GIVING TARGET INDIVIDUAL CONFIDENCE IN PREVENTING PREGNANCY.

Enabling factors as described include availability, accessibility, and affordability of ECs. It also includes the available guidelines to help adolescents sustain access and use. These are coupled with the village health teams' strategy. The village health team (VHT) members encourage, motivate, counsel, and refer the adolescents for emergency contraception services to the health

facilities that provide it. Tick the most appropriate answer per question concerning the service provider.

1. Where do you think adolescents get ECS from? Government hospital [], government health centre [], pharmacy, clinic [], drug shop [], other specify
.....
2. What is the distance to the nearest health facility where ECs are obtained from?
.....Kms, Don't know []
3. How much do you think the ECs cost?in UGX, Don't know []
4. Do you think it is high, moderate, or low cost? Give me your answer.

For this section, you are required to tick the most appropriate option regarding the subject matter. Please note that SA = Strongly Agree, A=Agree, D=Disagree, SD =strongly disagree.

	Statement of consideration	SA	A	D	SD
1	I visit VHTs when am going to seek EC services				
2	The VHT also visits us to tell us about ECs				
3	The VHTs encourages us young people to use ECs				
5	The VHTs tell us the facilities where ECs can be obtained				
6	I had a sexual problem I approached a VHT, and she was helpful				

SECTION E: SEXUAL-RISK PRACTICE AND USE OF EMERGENCY CONTRACEPTIVE USE AMONG ADOLESCENTS

In this section you are required to kindly tick [✓] in the appropriate column to correspond to your experience regarding sexual risk practices and use of emergency contraceptive within the last six months as an adolescent. Please be as truthful as possible.

S/N	Sexual-Risk Practices and Emergency Contraceptive Use Variables	Response Category.			
		None of the Time	Some of the Time	Most of the Time	All of the Time
1	How often during the month do you have sexual intercourse?				
2	How often do you use emergency contraceptive immediately after sexual intercourse because you think you are protected?				
3	How often do you forget to use emergency contraceptive immediately after sexual intercourse because you are not prepared?				
4	I have non-penetrable sexual encounters whenever I have sex.				
5	I am able to obtain emergency contraceptive devices to protect me from becoming pregnant after sexual intercourse.				

6	I often have to delay using emergency contraceptive beyond the day after having sexual intercourse because I do not have the device to use.				
7	I often get emergency contraceptive commodity from healthcare facility.				

Thank you for your response!



Appendix 2: Service Provider's Questionnaire

For Use and Access to Emergency Contraception in Tooro Region, Uganda

Dear respondent,

This question intends to measure the use and access to emergency contraception in Ankole region, Uganda. The intention of this tool is to measure group responses not individual responses; therefore, your name will not be written on this questionnaire. The code shall be used as an identifier, as observed on the first page. Your responses are very vital because they will contribute to the understanding of the use and access of emergency contraception among adolescents. In this tool, there is no right or wrong answer. All the answers are correct. It is therefore desired that you be as truthful and honest as possible. The questionnaire will take a maximum of 20 minutes, and completing this questionnaire is voluntary. The information provided will be provided with maximum confidentiality. Completing the questionnaire is very vital to getting consistent meaningful results. Thank you for your willingness to consent and thus participating in this research.

SECTION A: DEMOGRAPHIC CHARACTERISTICS

Please kindly tick the following

1. Age at last birthdayyears
2. Type of service provider; Enrolled Nurse ☐ Enrolled Midwife ☐ Registered Nurse ☐ Pharmacist ☐ Clinical Officer ☐ Medical Officer ☐ Others specify ☐
3. Gender; Male ☐ Female ☐
4. Ethnic origin; Munyankole ☐ Muganda ☐ Mutooro ☐ Mukonjo ☐ Mwamba ☐
5. Years of experience; Below 1 year ☐ 1-3years ☐ 3-5 years ☐ Above 5 years ☐
6. Type of facility; Government hospital ☐ Government health centre ☐ Private hospital ☐ Pharmacy ☐ Drug shop ☐ Clinic ☐ Other (specify) ☐
7. Religion: Catholic ☐ Anglican ☐ Muslim ☐ Pentecostal ☐ Traditionalist ☐ Others (specify) ☐
8. Residence: Rural ☐ Urban ☐

SECTION B: SERVICE PROVIDER FACTORS (THIS MAIN VARIABLE HAS SUB-VARIABLES RELATED TO KNOWLEDGE, ATTITUDE AND PRACTICES)

SECTION B1: SUB-VARIABLE OF KNOWLEDGE

For this section, you are required to tick only one most appropriate answer per question.

1. The most suitable definition of emergency contraception include; Are both traditional and modern methods to prevent pregnancy ☐; These are traditional methods of family

planning [] These are a form a of modern contraception that is taken as an emergency after unplanned/unintended pregnancy [] Don't know []

2. Emergency contraception medicine include levonogestrel [] Depoprovera [] monthly pill [] injectorplan condom [] IUD [] Don't know []
3. Emergency contraception are mostly effective at; reducing HIV transmission [] preventing unwanted pregnancy [] preventing conditions like hypertension and cancer [] Don't know []
4. The appropriate time to take emergency contraception is; Within the 1st 5 days []; after 5 days []Any time within a month [] Don't know []
5. I have had previous training on ECs use and access among adolescents Yes [] No []
6. I got information about EC through the following channels; workshops/trainings [] My previous training school [] fellow workmate [] on media others specify []

Several issues emanate from knowledge that service providers have over the use and access to emergency contraception. For this section, you are required to tick the most appropriate option regarding the subject matter. Please note that SA = Strongly Agree, A=Agree, D=Disagree, SD =strongly disagree.

Sn	Statement of consideration	SA	A	D	SD
1	ECs are safe to use				
2	ECs are used in case of rape				
3	ECs are used in case of sexual cohesion, infrequent or unpredictable sex				
4	ECs won't cause cancers				
5	ECs can be used by adolescents in refugee or adolescents in conflict settings				
6	ECs are effective in preventing pregnancy				
7	ECs blocks implantation				

SECTION B2: SUB-VARIABLE OF PERCEPTIONS OF SERVICE PROVIDERS ABOUT PROVISION OF ECS TO THE ADOLESCENTS

The following statements indicate how confident you are in providing ECS to adolescents. Tick in the appropriate column the most suitable answer you think can be most correct for the specific statement. You will consider among the following responses in terms of VC= Very Confident, C=Confident, CA=Confident but needs assistance and NC=Not confident at all

	Statement of consideration	VC	C	CA	NC
1	How confident are you able to prescribe the ECs to the adolescents when the adolescent come to access it				
2	How confident are you able to identify different EC commodities on the market				
3	How confident are you able to give information about efficacy of ECs to the adolescents who come to access EC services				
5	How confident are you able to explain to the adolescents the timing in which to take ECs after unprotected and unwanted sex				
6	How confident are you able to explain the contraindications of ECs use				
7	How confident are you able to explain to the adolescents the perceived barriers to access of ECs among adolescents				
8	How confident are you able to refer the adolescents in case they have any other sexual problem (especially those who have come to access ECs)				
9	How confident are you able to follow up the adolescents who come to access EC services				

Section B3: Sub-Variables of Attitudinal dispositions related to EC and pregnancy after sexual intercourse. Including intentions and willingness to use ES, fear of the devices, preferences- between nothing, pills, condom, and EC,

SUB-SECTION B3: SERVICE PROVIDERS ATTITUDE ABOUT USE AND ACCESS OF EMERGENCY CONTRACEPTION AMONG ADOLESCENTS

A number of issues emanate from attitudes that service providers have provision of emergency contraception. For this section, you are required to tick the most appropriate option with regard to the subject matter. Please note that SA = Strongly Agree, A=Agree, D=Disagree, SD =strongly disagree.

Sn	Statement of consideration	SA	A	D	SD
1	I am positive about ECs being given freely to adolescents like condoms				
2	Am willing to provide ECs to the adolescents anytime				
3	Am not bothered about discussing adolescents needs to use ECs				
4	Am apprehensive about adolescents who take ECs as immoral				
5	I feel that adolescents should be not discouraged from taking ECs				
6	I have a feeling that it's not a sin to take ECs				
7	My religion doesn't allow me to take ECs				
8	Am not enthusiastic to provide ECs to the adolescents because our community doesn't allow us to take ECs				
9	I prefer the adolescents to abstain or even get pregnant than giving them ECs				
10	I agree that ECs are supposed to be taken by only married people including adolescents				
11	Our community will label me bad, because I promote promiscuity				

	among adolescents when I give them ECs				
12	I fear that adolescents who take ECs may develop infertility, or cancers				

SUB-SECTION B3: SERVICE PROVIDERS PRACTICES ABOUT USE AND ACCESS OF EMERGENCY CONTRACEPTION AMONG ADOLESCENTS

Some issues, knowledge and practices are manifested in the actions of provision of the service. This is an important section in this research. For this section, you are required to tick the most appropriate option regarding the subject matter. Please note that SA = Strongly Agree, A=Agree, D=Disagree, SD =strongly disagree.

Sn	Statement of consideration	SA	A	D	SD
1	ECs are not given over the counter to adolescents. We do a prescription				
2	I don't give information on instructions about ECs because adolescents may not require it				
3	I don't provide ECs to the adolescent				
4	I don't provide ECs to the unmarried adolescents				
10	I don't give follow up dates when the adolescents come to access ECs				
11	I don't have a book where I write the adolescents who come to access EC				
12	There is no guideline or procedure manual here. Everyone does the way they wish				

SECTION C: REINFORCING FACTORS TO USE AND ACCESS OF ECS AMONG ADOLESCENTS

The re-enforcing factors include the health facility infrastructure, including privacy confidentiality, availability, and affordability.

1. How often are ECs in stock? Always in stock [], most times in stock [], rarely in stock [], never in stock []
2. How much are the ECS in this facility; Free Less than 5000 [], 5000-10,000 UGX [], more than 10,000 UGX [] Don't know []
3. I think ECS are not expensive to the adolescents; Yes [], No [], Don't know []
4. There are guidelines at the health facilities to help service providers give ECs to the adolescents; Yes [], No [], I don't know []
5. There is a link in the community that accelerates referrals and follow up as far as EC service provision to the adolescents is concerned; Yes [], No [], I don't know []
6. There is a government personnel who offers technical support to the service providers as far as access and use of ECS are concerned; Yes [], No [], I don't know []

Thank you for your participation.

Appendix 3: Key informant interview guide to the key opinion leaders

USE AND ACCESS TO EMERGENCY CONTRACEPTION IN TOORO SUB-REGION, UGANDA

Interviewee: _____

Designation: _____

Interviewer: _____

Date: _____

Statements under bold headings are instructions/comments that the interviewer should provide to the key informant (KI)

Other instructions/Comments intended only for the interviewer are provided in the brackets and caps letters and should be read to the KI

Introduction

Thank you for agreeing to be interviewed. Your assistance and comments are treasured and significant. This interview is non-formal, like a chat.

Purpose

The aim of this interview is to find out access and use of ECs among adolescents in Tooro Sub region. This will help to devise means to reduce unintended pregnancies among this group of people. The opinions, insights and perspectives will help in formulating strategies tailored to improve adolescent health.

I am very interested in all your thoughts, remarks, and recommendations. There are no right or wrong answers. Results from this interview will assist in making the final report of the intervention programme more comprehensive.

Procedure

This interview will take about 30 to 45 minutes. I will be taking notes and recording your thoughts and all info from this interview will be treated with utmost confidentiality. You may discontinue the interview at any time. As previously conversed, I will need your consent to continue with the interview.

[THANK KI FOR GIVING CONSENT TO DO THIS INTERVIEW AND PROCEED TO QUESTIONS]

1. Please, how long have you been in this current position?

Notes:

PROBE FURTHER: Kindly state your present position in this health facility?

2. Are there EC services for adolescents at the health facilities?

Notes:

PROBE FURTHER: Kindly state the facilities that offer ECs to the adolescents. Specify whether they are government or private facilities.

3. What are the most important challenges organizing patient education in this facility?

Notes:

PROBE FURTHER: Kindly give your perspective of the adolescents' personal challenges, social economic, as well as cultural challenges. Also highlight on health facility challenges

4. Just like other reproductive health services among adolescents have support association to assist in connecting resources such as information and service delivery, is there such for ECs among adolescents?

YES [☐] NO [☐]

PROBE FURTHER: Give reasons for your answer and describe how EC services among adolescents operate here.

Notes:

5. Health education programme have been conducted on different populations to understand the importance of prevention of conditions and diseases. How would such a programme be incorporated into the existing programmes to enhance sustained use and access to ECs among adolescents in Uganda?

Notes:

PROBE: What supporting role would such a programme play in the over- all goals of reproductive health department; in terms of training service providers and the VHTs with additional skills (*Something like the special training on ECs use and access among adolescents*)?

Notes:

6. Are there difficulties/complains or reports among service providers from the public facilities and private facilities on access to ECs among adolescents? Do these service providers have different challenges and difficulties OR they cut across?

Notes:

PROBE: Do you have any suggestions of how improvements can be achieved with regards to EC access among private and public facilities?

Notes.

7. We have covered very important details about access and use of EC services among adolescents, the important ways and additional resources that may facilitate what is available in this limited resource setting. Is there anything else you believe I should know to make the interview more complete?

Notes:

[THANK YOU FOR THE INTERVIEW AND MENTION THAT IT HAS BEEN VERY INFORMATIVE AND CLOSE].

Demographic Characteristics

Rank of the interviewee:

Age:

Gender:



Appendix 4: Focus Group Discussion Guide for key informants

The agenda is to discuss issues related to use and access of ECs among the adolescents in Tooro sub region, Uganda, regarding knowledge attitudes, perceptions, and other related factors.

The aim of this focus group discussion is to uncover the experiences, views and interpretation of the issues related to the above subject matter. It is an opportunity for adolescents to freely discuss simple to complex issues related to access and use of ECs because, the results from this discussion are vital to decision making, policy formulation and implementation of strategies related to EC use among adolescents. The focus group discussion will explore the perceived benefits, threats, challenges, and opportunities related to access and use of ECs among adolescents,

Preliminaries

- The moderator greets the participant.
- The moderator proceeds to state the main purpose of the discussion.
- The moderator then seeks permission to encode the discussion.
- The moderator encourages the discussants to express themselves freely and assures them of ultimate confidentiality.
- Lastly the moderator initiates the self-introduction and everyone in this group introduces themselves, then discussion begins.

Preamble:

State what ECs are.

How did you learn about ECs?

Probe further: Who told you about ECs?

When did you first know about ECs?

What was the source of information, was it service providers, media, friend, and parent?

Probe further; when you went to receive the EC services, did you receive them from private or public health facilities?

Probe for distance to the facility,

And why did they prefer this type of facility?

Probe further; when you reached the facility how was the reception of the service provider?

Probe for the way the service provider received them.

If they were given somewhere to sit?

Were they offered a greeting? (Give as much of this experience as possible)

Probe further; did you get any challenge accessing the EC medicine?

Probe for privacy, accessibility of the drug as over the counter or not?

The cost of the medicine?

The waiting times.

Instructions on taking the medicine?

Any other ASRH information given?

Plan of follow up or who to ask in case you need clarification?

Did you obtain the number of the service provider?

Probe further; would you like to go back to this facility to access EC services?
And would you like to refer any of the adolescents to this facility?

Probe further; what do you think the community thought about you when you went to access EC services?

Probe for religious affiliations, and cultural issues, peer influence, parental support, and partner involvement (give as much explanation as possible)

Also probe for VHT involvement in EC access and use among adolescents.

Last issue to discuss; in your own opinion, what do you think can be done to strengthen the use of EC among the adolescents in Uganda?

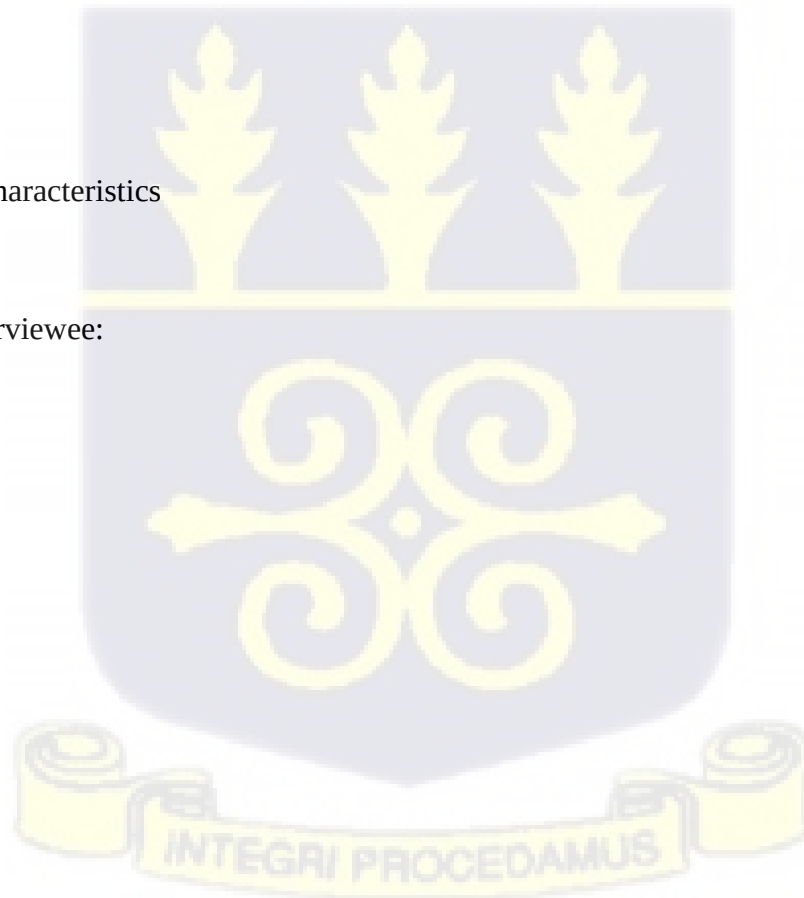
Probe for any community, health facility, social, political strategies

Thank you for your participation.

Demographic Characteristics

Rank of the interviewee:

Age:



Appendix 5: Mystery Clients questionnaire

On the use and access of ECs among the adolescents in Tooro Sub region, Uganda

District:

Ward/sub county:

Name of the facility:

Type of facility; Government ☐ or private ☐

Type of the private health facility: Pharmacy ☐ Clinic ☐ Drug-shop ☐

Sex of the service provider: Male ☐ Female ☐

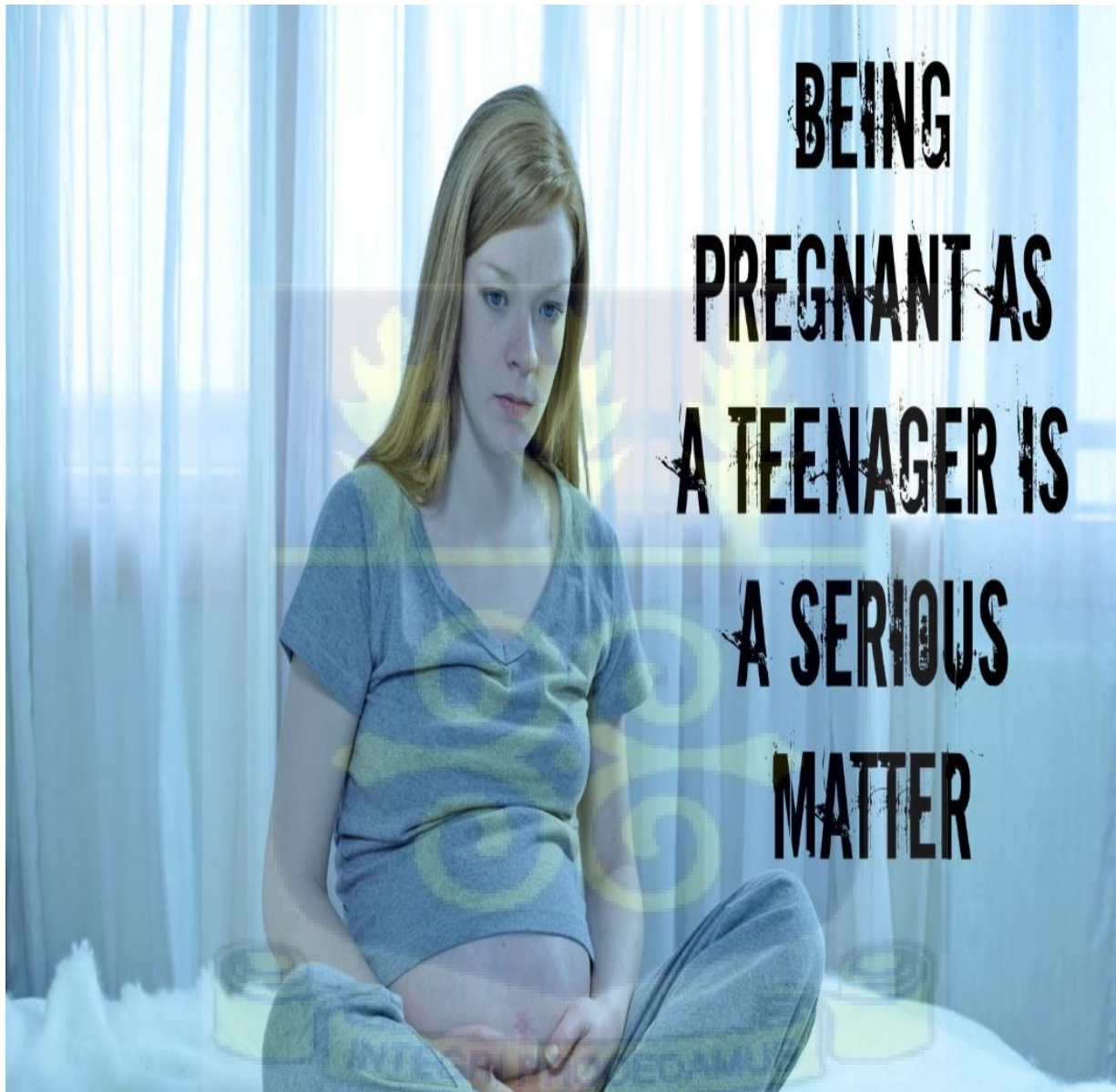
Sn	Variable	Response	Comment
1	Did the service provider greet you?	Yes ☐ No ☐	
2	Did the service provider offer you a sit?	Yes ☐ No ☐	
3	Did the service provider ask you what you want?	Yes ☐ No ☐	
4	Did the service provider ask you your name?	Yes ☐ No ☐	
5	Did the service provider ask you your age?	Yes ☐ No ☐	
6	Did the facility have ECs?	Yes ☐ No ☐	
7	Did the service provider counsel you before giving you ECs	Yes ☐ No ☐	
8	Did the service provider tell you the dose	Yes ☐ No ☐	
9	Did the service provider tell you the how to take the medicine?	Yes ☐ No ☐	
10	Did the service provider tell you the contra indications of the medicine?	Yes ☐ No ☐	
11	Did the service provider tell you the circumstances you need to know on when to take the ECs (eg, rape, and sexual violence?)	Yes ☐ No ☐	
12	Did the service provider tell you when to return?	Yes ☐ No ☐	
	Attitudinal questions		
13	I waited for a long time before being attended to by the service provider.	Yes ☐ No ☐	

14	The service provider was confident when answering my questions	Yes ☐	No ☐	
15	The service provider asked in a friendly way	Yes ☐	No ☐	
16	The service provider was welcoming	Yes ☐	No ☐	
17	The environment at the facility is private to allow me to express myself	Yes ☐	No ☐	
18	The voice of the service provider was low portraying confidentiality and friendliness	Yes ☐	No ☐	
19	The service provider gave me enough time while attending to me	Yes ☐	No ☐	
	Practice	Yes ☐	No ☐	
20	The service provider packed the medicine for me in an opaque package (privacy issues)	Yes ☐	No ☐	
21	The service provider wrote the doze and time to take the medicine on the package	Yes ☐	No ☐	
22	The service provider explained to me what he/she had written	Yes ☐	No ☐	
23	The service provider told to repeat what he/she had said about the medicine (to check whether I understood)	Yes ☐	No ☐	
24	The service provider attended to all my inquires and made sure that I understood	Yes ☐	No ☐	
25	Would you like to go back to the same facility?	Yes ☐	No ☐	
26	Is there any other issue you would like to point out here?			

Thank you for your participation. Now go to another health facility.

Appendix 6: A training manual for service providers

EC ACCESS AND USE AMONG ADOLESCENTS TRAINING MANUAL

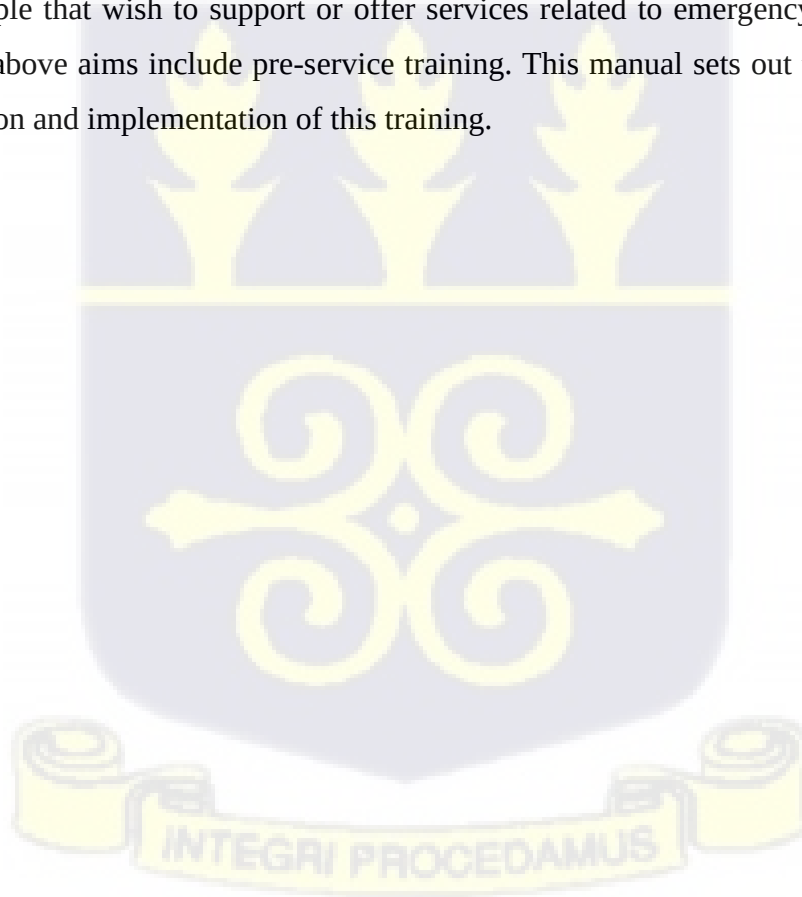


A course to strengthen the capacity of service providers in Tooro sub-region, Uganda.

Introduction and purpose

The purpose of their manual is to guide in the design, implementation, and evaluation of the course that aims to improve access and use of ECs among adolescents in Uganda. This training will be carried out among the service providers in both private and public health facilities in Tooro sub-region, Uganda. The course falls within the mandate of adolescent sexual and reproductive health service as well as continuous professional development in its broadest sense. The focus of this manual is simple while using an evidence-based practice that can easily be adopted by all providers in primary health care.

The manual is intended for use by the course director and the facilitators. Its intended audience includes all people that wish to support or offer services related to emergency contraception to accomplish the above aims include pre-service training. This manual sets out the requisite steps for the preparation and implementation of this training.



COURSE BASICS



Participants

This course is designed for service providers in both public and private health facilities. These include nurses, midwives, clinical officers, pharmacists, and medical officers at primary-level health facilities. These service providers are the frontiers of contact with adolescents who come to seek emergency contraception services. The course builds on their existing professional developments and experience as service providers of family planning. In addition to this goal, the training aims to impact the skills for the everyday intervention of adolescents who come to access adolescent sexual and reproductive health services (ASRHS). What the course does not run is the complex mechanism of the components of emergency contraception, as it can be read from the manufacturers' instruction.

Empirical evidence shows that adults learned best by tackling the situation, problems, or tasks that participants accept as interesting and worthwhile. The course is therefore primarily structured as a series of problem-based tasks for small groups. Learning is reinforced by cumulatively adding tasks and allowing trainees to reflect on their experiences.

The course is not designed for personnel without formal public health training.

Aim and Overall objectives.

The main aim of this training is to strengthen the ability of service providers to successfully manage adolescents to access and use emergency contraception in private and public health facilities.

The objective of each session is set in the session summaries and lesson plan which specify what participants should be able to do by the end of the course.

Duration

The duration of any teaching course is a trade-off between achieving various objectives and the length of time a professionally active participant can be removed from his or her duties. The period of two days required for this course allows for comfortable session lengths with adequate breaks. An additional day should be set aside before it starts to allow for the induction of the facilitators.

General design

The task-based learning approach requires comprehensive tasks to be subdivided into essential components tasks. For it to have a cumulative learning effect the sequence of sub-tasks ought to mirror the order in which issues relating to the main task would normally be tackled. At appropriate junctures, brief tasks that consolidate or synthesize newly acquired knowledge are added. The sequence for most sessions is as follows:

- Skill-based learning through practical sessions based on course protocols.
- A walk through each clinical algorithm
- Use of case studies to illustrate the practical use of the algorithm.

Each morning starts with an interactive plenary session to explain the session contents. Other prerequisite skills such as how to counsel the adolescent are taught using mini lectures combined with practical sessions involving volunteer adolescents. Also, participants gain first-hand experience with actual adolescents through this training on the final debriefing session.

Group work: Except for the two initial lectures to introduce the course and display images of the adolescents with pregnancies and those who have succeeded in life, and how emergency contraception can help adolescents pursue their future goals, most learning will be done from the group work. Tasks are introduced in the primary sessions following which participants by observing and supporting each other, mainly in groups of three, through the problem-solving process. Communication over the three days takes place through active participation rather than lectures.

Preparation and specification of materials

Each participant is provided with an EC handbook containing all the charts, recording forms, and guidelines taught on the course, including protocols and algorithms. These can be extracted from the more detailed manual provided for the facilitators. Participants are expected to consult these materials as they carry out their tasks. A training course should not take place unless these materials can be easily made available to the participants. It is recommended that before training participants should receive the kit containing materials needed to provide EC training. This kit will contain an EC handbook, a writing pad, a pen, and a sample of EC.

Course Programme

A detailed description of the sequence of activities and Programme is presented as a specimen timetable below. Adjustment to the timing of activities can be made provided all the sessions are covered. The timetable is displayed considering the minimum possible length for the training program.

Induction of facilitators

The main facilitator will need to instruct and induct the two co-facilitators to assist in supervising the practical sessions, which are carried out in a small group. Each group should ideally have a facilitator working with it. Facilitators will be familiar with the training material, including the use of checklists. They should also assist the main facilitator in preparing the materials for the practical sessions. The facilitators are the recognized trainers of family planning that will assist in the delivery of the course content.

Facilitators are inducted immediately before the main training session. It is best if the facilitators are familiar with the environment and working condition of the trainee, which means that the locally chosen facilitators are the best suited for induction. The suggested modules for the induction of facilitators are shown in the program.

Registration of participants

Every effort should be made to ensure that all participants start each training day together. It can be disruptive for a group if one member does not arrive before the start of the course, is absent during the course, or leaves before completion. It is therefore suggested that as a rule of thumb the participants who arrive at the end of session one will not be allowed to continue with the course, and that one who chooses to leave early does not receive the certificate of successful completion.

Daily program

Each morning and afternoon start with a plenary session. Having a plenary session serves several purposes. It can be used to introduce new tasks or to solve any outstanding issues from the previous day that participants haven't been able to resolve to their satisfaction. It is also used for

oral presentation of group tasks. Furthermore, it ensures that group members, facilitators, and resource persons are present at the scheduled time.

Clinical algorithms are series of learning activities associated with a logical decision-making process. Each algorithm is introduced in the plenary session followed by the sample cases and finally the practical skills sessions.

Practical sessions

A half-day clinic is designed to provide participants with relevant practical exercises and the invaluable experience of managing actual patients in a real-life situation. The clinic visit should ideally be scheduled for the morning on the third day. The clinic visit is strategically placed at the end of the program to ensure that participants have by any point acquired all basic knowledge and skills required to manage actual patients.

The morning session shall be conducted before the clinic visits services to brief participants. The briefing covers the objectives, program, logistics, and expected outcome of the visit. After the clinic visit, a debriefing session allows participants to discuss and reflect on their experiences. The final event is the concluding session which includes course evaluation and issuing of certificates.

Monitoring and evaluation

Monitoring and evaluation activities are fully integrated into the program. Both pre-and post-course questionnaires are used to assess new knowledge and skill levels gained by participants in the course. The pre-course evaluation takes place on the starting day of the course. Post-course evaluation is scheduled for the final afternoon; this should leave enough time for evaluation and feedback.

Trainees are required to fill in various checklists over the three days of the course to ensure that they have taken part in and completed all the practical sessions.

At the end of the course, a workshop evaluation form is also completed.

Monitoring has three purposes.

- To correct in real-time any adverse issues or failure of judgment, or to benefit from any particular successful aspects of how the course was run.
- To gain information for improving the future course
- To allow participants to express themselves anonymously.

The evaluation has three purposes.

- To clarify whether the conduct of the course was acceptable and effective to participants, organizers, and staff.
- To contribute to further course improvement in terms of content and training methods, where applicable
- To provide information on whether the course is sustainable, acceptable, effective, and efficient in terms of the facilities, and resources required to organize it.

Content of the intervention

Service providers need informed decisions to provide EC quality services to adolescents. This is considered as a strategic approach to awakening certain consciousness and arouses appropriate feelings that stimulate personal involvement and commitment in behavior change drive. The service providers need this kind of approach to acquire skills to successfully implement emergency contraception services to adolescents.

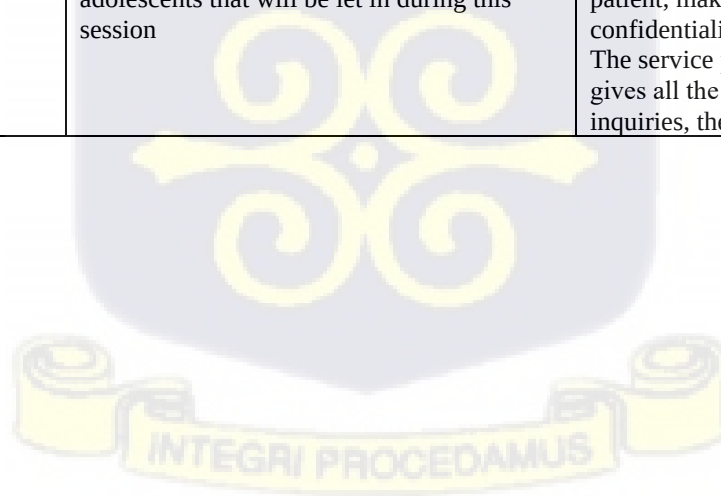
Health Education innovation improves communication which enhances and establishes learning, comprehension, and good understanding when well incorporated in the service providers' education and is structured to enhance knowledge about consequences of unintended pregnancies among the adolescents. Health education innovation awakens the understanding of the role and benefits of emergency contraception to the adolescent's physical, biological, psychosocial, and cognitive health. The personal interpretation involves the nature of adolescent pregnancies and the complications involved. The service provider engaged in health education can identify issues that appear masked among the adolescents.

The modules are therefore designed to highlight, discuss, and articulate probable reasons for getting unintended adolescent pregnancies. Identifying the rationale for ECs among adolescents and their difficulties regarding compliances, providing understanding on the implication of EC non-usage as well as inconsistency. Reinforcing attitudinal orientation is required to facilitate EC access and use among adolescents.

SESSION OUTLINE FOR INTERVENTION OF SERVICE PROVIDERS

SESSION NUMBER	SESSION OUTLINE	GOALS ARE TO:	SPECIFIC OBJECTIVES; BY THE END OF EACH OF THE SESSIONS, SERVICE PROVIDERS WILL;	EC PROTOCOL INVOLVED
SESSION ONE	Introduction: An overview of adolescence, their behaviors, and development	Engage the service providers to review the characteristics of an adolescent. Engage the service provider in the exploration of the development of the adolescent. Identify the reproductive health transitions of the adolescent. Identify the challenges faced by the adolescents	Define who an adolescent is contextually and culturally. Identify which organs of the body start to change during adolescence. Identify how the adolescence stage affects the physical, psychomotor, and cognitive development. Identify how stages of adolescent development influence behavior. Identify social, economic, biological, gender psychological challenges of adolescence	Definition of an adolescent according to WHO definition. Review Health/Wellness Review adolescent development.
SESSION TWO	Overview of adolescent pregnancies	providers overview of pregnancy and associated body changes Providers understanding of the current prevalence of adolescent pregnancies. Identify the complications related to adolescent pregnancies.	overview of the reproductive systems and mechanism of development of pregnancy Identify global trends, including trends among developed and developing countries, East Africa, Uganda, Tooro sub-region. Identify the physical, social-cultural, mental, political, and educational consequences of adolescent pregnancies	A brief review of the anatomy and physiology of the reproductive system Provide evidence-based facts on the prevalence of adolescent pregnancies. Review of the body changes among adolescents who are pregnant, the social exclusion and peer isolation, the cultural exclusion as pregnancy among adolescents is an abomination, the psychological trauma, experiences, and their consequences, drop out of school and failure to attain the future that one deserves
SESSION THREE	Introduction to emergency contraception	Engage service providers to identify emergency contraception commodities	Define emergency contraception. Identify different types of ECs Identify the mode of action of emergency contraception. Tease out the effectiveness of emergency contraception. Identify the groups of people that use emergency contraception. Look out for the contraindications of emergency contraception	A full description of the dose, mode of action, contraindications, and effectiveness of EC according to the approved guidelines and protocols

SESSION FOUR	Discussions on the myths and misconceptions of using emergency contraception	Engage the service providers to identify the myths and misconceptions of using emergency contraception among the adolescents	Discussion on the myths including ECs facilitating multiple sexual relations, influencing promiscuity, not culturally acceptable to adolescents, religiosities related to ECs use among adolescents. and negative attitude of service providers More misconceptions about infertility, abortion, cancer development, and other adverse effects	Use evidence-based documents to clarify the myths and misconceptions related to EC use among adolescents. Emphasize the dangers of myths and misconceptions of ECs to the adolescent's health. Emphasize the benefits of clearing the myths and misconceptions to enable the community to understand the benefits of the use of ECs among adolescents
SESSION FIVE	Discussion about counseling adolescents on access and use of ECs among adolescents	Identify what constitutes counseling of adolescents on access and use. To link access and use to ECs to other reproductive health services. To encourage asking about their concerns, questions, queries, feelings, and fears associated with EC use among adolescents	Demonstrate that counseling is an important component of access and use. Show service providers what is meant by counseling. Encourage service providers to always communicate how they feel with their clients. Encourage service providers to desire to know more about ECs among and the new upcoming information. Always ask the adolescents to take care of their sexual lives when they come to access and use ECs.	Review activities that constitute counselling of adolescents on access and use of ECs Remind service providers that these activities are essential in the sustainability of EC use. Review on how counseling is important in improving self-dignity and maturity among adolescent seeking EC services Review the benefits of counseling on the service provider and adolescent relationship. Remind service providers to encourage adolescents to communicate any uncertainties, fears, and worries about ECs. Emphasize that they need to know everything about their condition, EC medicines, when to return, and other important information about reproductive health services
SESSION SIX	Practical session on the provision of EC services to the adolescents	To take the participants through the steps of appropriate provision of EC services to adolescents	Practical demonstration on the peer adolescents that will be let in during this session	The service providers will begin with a greeting, and welcoming the patient, making sure that the environment ensures privacy and confidentiality. The service provider then asks the adolescent what she wants, thereafter gives all the necessary info on the ECs, attends to all the adolescent's inquiries, then packs the medicine, records thanks and sees them off



Appendix 7: A training manual for the village health team members

MODULE FOR SOCIAL SUPPORT TO ENHANCE ACCESS AND USE OF EMERGENCY CONTRACEPTION AMONG ADOLESCENTS



Introduction

Social support has been part of contemporary health care and it plays a significant role in contributing to health promotion. The importance of extending care to the communities including village health team members and significant peer educators that form a significant social network is becoming a culturally accepted strategy. The village health team (VHT) strategy is very important when providing social support for adolescents because they motivate, encourage, counsel, and refer the adolescent for EC services as well as listening to their reproductive health needs. In this relationship, good social support is associated with the improved psychosocial disposition of the adolescents and provides an advantage in facilitating some changes in the behavior of adolescents that can be sustained in EC care. Therefore, this module will define key functions of social support in assisting adolescents to ensure initiation and sustained EC to produce improved outcomes of access and use.

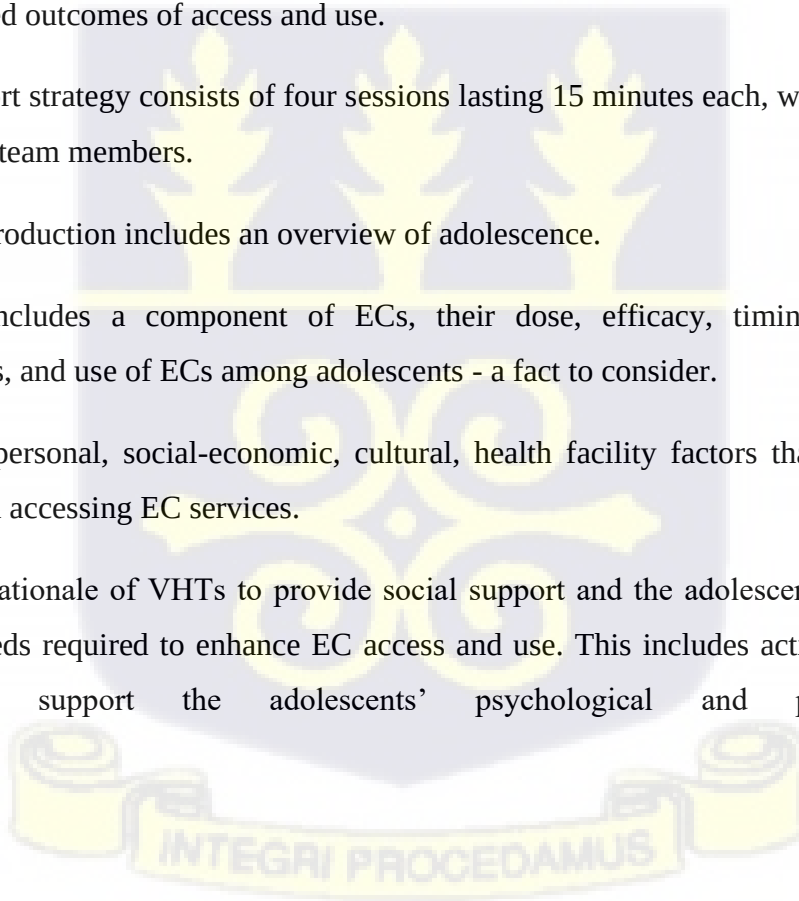
The social support strategy consists of four sessions lasting 15 minutes each, which will be given to village health team members.

Session one: Introduction includes an overview of adolescence.

Session two: includes a component of ECs, their dose, efficacy, timing indication and contraindications, and use of ECs among adolescents - a fact to consider.

Session three: personal, social-economic, cultural, health facility factors that facilitate/ deter adolescents from accessing EC services.

Session four: Rationale of VHTs to provide social support and the adolescents' psychological and physical needs required to enhance EC access and use. This includes activities that can be performed to support the adolescents' psychological and physical needs.

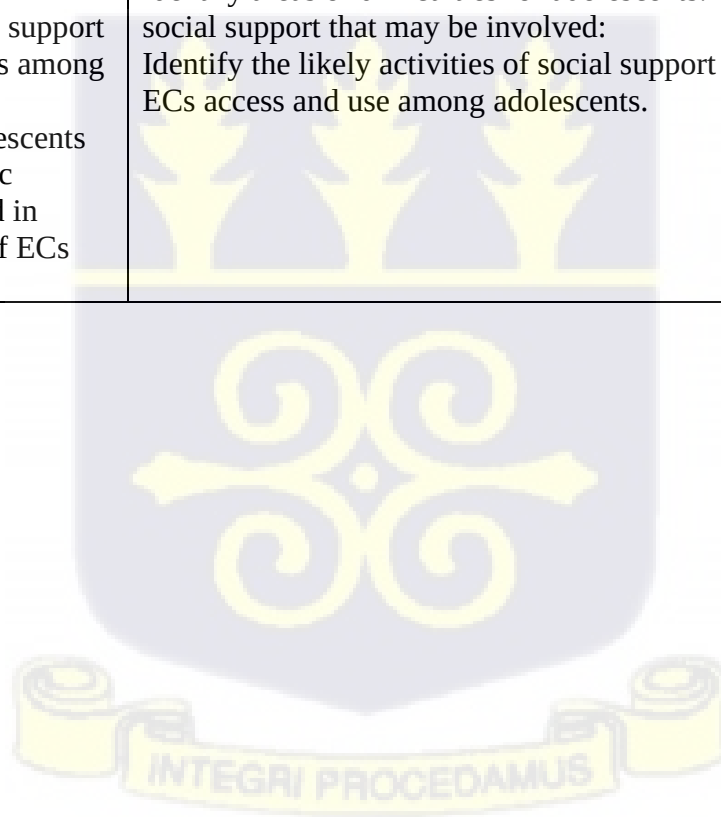


SESSION OUTLINE FOR TRAINING VHTS FOR SOCIAL SUPPORT TO ENHANCE EC ACCESS AND USE AMONG ADOLESCENTS

Session number	Session outline	Social support goals are to:	Specific objectives: By the end of each session, Social Support will;	Social Support counseling Protocol will involve only individual counseling
Session one	Introduction which includes an overview of adolescence	-Assist VHTS to identify how adolescence affects young people including the physical, social, sexual, and behavioral development -Emphasize the importance of cultural, social, and psychological diversity of adolescence and how this affects their growth and development -Assist VHTs to understand the effect of adolescent pregnancy on their physical, social-cultural, and psychological growth and development	-Recognize an adolescent by the physical and social developments especially the body structure and their cognitive development. -Identify different cultural and social aspects in which the community perceives a person to be an adolescent. -Identify the community's approach to enhance the adolescents' social-cultural and psychological growth and development -Identify some difficult experiences that adolescents go through in this transitioning stage -Identify different challenges that adolescents go through in case they get pregnant in the communities where they live	-Review the body mechanism especially during the adolescent stage -Review the social-cultural aspects of the community on the adolescents' growth and development -Review some practical aspects of what the community does to enhance the proper transition of adolescents during this stage - Review the different difficult moments adolescents go through this stage of development. They can be familiar, social, education, economic, gender, sexual, psychological, as well access to care. -Review of diverse challenges that adolescents go through when they become pregnant. -These can be physical, biological, social, cultural, educational, and psychological.
Session two	Introduction to EC and it's component	Emphasize the need to understand the EC services, including the types, their dose, efficacy, timing, indication, and contraindications. And the use of ECs among adolescent-a fact to consider.	- Understand what ECs are. - Identify the different types of ECs. - Identify the dose and the timing of ECs. - To identify the indications and efficacy of ECs to the adolescents - To identify the contraindications of ECs	ECs: the types, their dose, efficacy, timing, indication, and contraindications and use of ECs among adolescent will be discussed under this session
Session	factors that	To emphasize the need to	To understand the adolescent personal enablers	This will be done under group discussion

three	facilitate/ deter adolescents from accessing the EC services	understand the personal, social, economic, cultural, and health facility factors that could be associated with EC access and use among adolescents	and barriers to access and use of ECs among adolescents. To identify the social enablers and barriers to access and use of ECs among adolescents. To identify economic enablers and barriers to access and use of ECs among adolescents. To identify cultural enablers and barriers to access and use of ECs among adolescents. To identify health facility enablers and barriers to access and use of ECs among adolescents	Then the group leaders will present before the beginning of the next session
Session four	The rationale of VHTs to social support and the adolescents' psychological and physical need required to enhance EC access and use	Identify who is a social support. Identify what social support while accessing ECs among the adolescents. Encourage the adolescents to overcome specific difficulties involved in accessing and use of ECs among adolescents.	Identify the role of social support. Identify areas of difficulties for adolescents. social support that may be involved: Identify the likely activities of social support on ECs access and use among adolescents.	Review the rationale for social support in the EC access and use among adolescents. Review likely challenges that are encountered by adolescents while accessing and using ECs. Review the rationale and roles of social support by VHTs as far as EC access and use among adolescents is concerned

End of the training session



Appendix 8: Research Ethics Committee Approval forms



Uganda National Council for Science and Technology

(Established by Act of Parliament of the Republic of Uganda)

Our Ref: HS1829ES

1 November 2021

Theopista Fokukora
Cavendish University Uganda
Kampala

Re: Research Approval: **IMPROVING ACCESS AND USE OF EMERGENCY CONTRACEPTION AMONG ADOLESCENTS IN THE TOORO SUB-REGION OF UGANDA**

I am pleased to inform you that on **01/11/2021**, the Uganda National Council for Science and Technology (UNCST) approved the above referenced research project. The Approval of the research project is for the period of **01/11/2021** to **01/11/2022**.

Your research registration number with the UNCST is **HS1829ES**. Please, cite this number in all your future correspondences with UNCST in respect of the above research project. As the Principal Investigator of the research project, you are responsible for fulfilling the following requirements of approval:

1. Keeping all co-investigators informed of the status of the research.
2. Submitting all changes, amendments, and addenda to the research protocol or the consent form (where applicable) to the designated Research Ethics Committee (REC) or Lead Agency for re-review and approval **prior** to the activation of the changes. UNCST must be notified of the approved changes within five working days.
3. For clinical trials, all serious adverse events must be reported promptly to the designated local REC for review with copies to the National Drug Authority and a notification to the UNCST.
4. Unanticipated problems involving risks to research participants or other must be reported promptly to the UNCST. New information that becomes available which could change the risk/benefit ratio must be submitted promptly for UNCST notification after review by the REC.
5. Only approved study procedures are to be implemented. The UNCST may conduct impromptu audits of all study records.
6. An annual progress report and approval letter of continuation from the REC must be submitted electronically to UNCST. Failure to do so may result in termination of the research project.



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Website: www.health.go.ug

IN ANY CORRESPONDENCE ON

THIS SUBJECT PLEASE QUOTE NO. **ADM. 180/01**



Ministry of Health
P. O. Box 7272
Plot 6, Lourdel Road
KAMPALA
UGANDA

30th October, 2021

Ms. Theopista Fokukora
PHD student
Department of Population, Family and Reproductive Health
University of Ghana.
ACCRA

**RE: ADMINISTRATIVE CLEARANCE FOR MS THEOPISTA FOKUKORA
TO COLLECT DATA FOR PHD RESEARCH STUDY**

Reference is made to your letter dated 28th October 2021 requesting for administrative clearance to collect data for PHD research in the health facilities of Kamwenge and Bundibugyo districts. On the topic "Improving access and use of emergency contraception among adolescents in Tooro Sub-Region, Uganda".

Ministry of Health (MoH), notes that you are a Ugandan, undertaking your PHD studies at the above University. Furthermore, we note that your research was cleared by the Research Ethics committee of Mbarara University of Science and Technology in collaboration with University of Ghana and that the study is purely for academic purposes.

The purpose of this letter therefore is to inform you that MoH has given you clearance to collect data in the districts of Kamwenge and Bundibugyo, provided the data collected is for academic purposes.

Dr. Henry G. Mwebesa
DIRECTOR GENERAL HEALTH SERVICES

- cc. Permanent Secretary
- cc. Chief Administrative Officer, Kamwenge District
- cc. Chief Administrative Officer, Bundibugyo District
- cc. District Health Officer, Kamwenge District.
- cc. District Health Officer, Bundibugyo District.



Appendix 9: Fieldwork photography



The research team. Photo taken on 10th November 2021



The research team. Photo taken on 14th May 2022



The service providers during the training. Photo taken on 4th February 2022



The service providers after the training. Photo taken on 3rd February 2022



Focus group discussion with the adolescents. Photo taken on 10th November 2021



Focus group discussion with the adolescents. Photo taken on 14th May 2022