ADOLESCENT TRANSITION IN WEST AFRICA (ATWA) OUTCOME EVALUATION

2022-2023 Endline Report



THE UCSD CENTER ON GENDER EQUITY AND HEALTH, GRADE AFRICA, AND SAVE THE CHILDREN

JANUARY 2024

© 2024 Center for Gender Equity and Health, University of California San Diego

This report was written by Kathryn M. Barker, ScD, MPH, Sarah Smith, MPH, and Henry Wong, MSc of the University of California San Diego with support from Lilia Shakya of the University of California San Diego and technical inputs from Kiki van Kessel and Jannie Goedkoop of Save the Children Netherlands.

Recommended Citation:
Center on Gender Equity and Health. 2024. Adolescent Transition in West Africa (ATWA) Outcome Evaluation: Year 2 (2022-2023) Endline Report. La Jolla, CA: University of California San Diego for Save the Children.

gehweb.ucsd.edu/adolescent-transition-west-africa-atwa/
Twitter: @GEH_UCSD

TABLE OF CONTENTS

LIST OF TABLES 5
LIST OF FIGURES 7
LIST OF ACRONYMS AND KEY PHRASES 9
BACKGROUND 11
ATWA INTERVENTION 12
Intervention Dose 15
OUTCOME EVALUATION - STUDY DESIGN & METHODOLOGY 16
STUDY POPULATION 16
SURVEY TOOL DEVELOPMENT 18
SAMPLING FRAME 20
Commitment to Ethical Research and Child Safe Programming 22
Data Collection Procedures: Baseline and Endline 23
Outcome Evaluation Indicators 23
Other Measures 27
STATISTICAL ANALYSES 27
Results Tables: Interpretation Guide 29
YEAR II OUTCOME EVALUATION –BASELINE AND ENDLINE RESULTS 31
1. SOCIO-DEMOGRAPHIC CHARACTERISTICS 31
2. PUBERTY 32
Outcome Indicator 1.6: Knowledge about body changes during puberty, the menstrual cycle, and fertility 33
Output Indicator 1.2.3: Knowledge and beliefs about menstruation 34
Output Indicator 1.2.6: Menstruation a normal biological function 35
3. MENSTRUAL HYGIENE & MANAGEMENT: KNOWLEDGE & BEHAVIOR 36
Output Indicator 1.2.5: Knowledge of proper menstrual waste disposal 37
Outcome Indicator 1.10: Proper disposal of menstrual materials 37
Outcome Indicator 1.11: Washing and drying of reusable materials 38
Output Indicator 1.2.4: Hygienically managing menses 41
4. HIV, STI, & PREGNANCY 42
Outcome Indicator 1.7: STI risk, prevention and treatment knowledge 43
Outcome Indicator 1.8: HIV prevention knowledge 44
Impact Indicator 1: Decrease in adolescent birth rate 45
Impact Indicator 2: Decrease in adolescent pregnancy 46

5. CONTRACEPTION & SEXUAL ACTIVITY 46
Outcome Indicator 1.1: Intent to use modern contraception 46
Outcome Indicator 1.2: Condom use at last sex 48
Outcome Indicator 1.3: Consistent condom use 49
Outcome Indicator 1.5: Known modern contraceptive methods 49
Impact Indicator 3: Need for family planning satisfied with modern contraception 51
Impact Indicator 4: Adolescent modern contraceptive prevalence rate 53
6. ACCESS TO HEALTH SERVICES 53
Outcome Indicator 1.9: Knowledge of where to seek SRH services 54
..... 54
7. COMMUNITY SUPPORT 55
Output Indicator 1.4.1: Proportion of adolescents who feel religious community leaders support the provision of LSE/SRHR information and SRH services to adolescents ages 10-14 and 15-19 years 56
Output Indicator 1.4.2: Proportion of adolescents who feel school leaders support the provision of LSE/SRHR information and SRH services to adolescents ages 10-14 and 15-19 years 61
Output Indicator 1.4.3: Proportion of adolescents who feel other community leaders support the provision of LSE/SRHR information and SRH services to adolescents ages 10-14 and 15-19 years 65
Adolescent beliefs about appropriate people to teach them about puberty 69
Adolescent perceptions of community support for SRH education in schools 70
8. GENDER ATTITUDES & NORMS 71
Outcome Indicator 1.4: Gender Equitable Attitudes 71
9. GENDER-BASED VIOLENCE 73
10. SELF-EFFICACY 78
Self-efficacy 78
Self-efficacy in puberty 79
Self-efficacy related to unwanted sexual attention 80
Self-efficacy in wanted and safe sex 83
Self-efficacy in bodily autonomy 86
Self-efficacy & peer pressure 87
11. CHILD MARRIAGE 89
Impact Indicator 5: Decrease in adolescent marriage 94
12. FEMALE GENITAL CUTTING 95

SUMMARY AND CONCLUSIONS 98
Intervention effects on outcome indicators 98
Intervention effects on long-term impact indicators 103
Intervention effects on other program domains 104
Conclusions 107
APPENDICES 108
Appendix A. ATWA Curriculum for Burkina Faso 108
Appendix B. ATWA Curriculum for Mali 108
Appendix C. ATWA Curriculum for Niger 108
Appendix D. ATWA M&E Framework 108
Appendix E. ATWA Survey Instrument 108
Appendix F. Data Collection Technical Reports (GRADE Africa) 108
Appendix G. DiD Summary Tables 108

LIST OF TABLES

Table 1 | Subjects included in the Burkina Faso curriculum by school type (no OOS component) 13
Table 2 | Subjects covered in the Mali curriculum by school type (no OOS component in Year 2) 14
Table 3 | Subjects included in the Niger curriculum by school type 14
Table 4 | Intervention dose across each country 15
Table 5 | Planned sample of adolescents by country and school status 21
Table 6 | List of ATWA outcome evaluation indicators by corresponding report section 24
Table 7 | Example of results table 30
Table 8 | Respondent characteristics by study wave in Year 2 evaluation 32
Table 9 | Respondent characteristics by study group at Year 2 Endline 32
Table 10 | Outcome Indicator 1.6: Knowledge about body changes during puberty, the menstrual cycle, and fertility 34
Table 11 | Output Indicator 1.2.3: Knowledge and beliefs about menstruation 35
Table 12 | Output Indicator 1.2.6: Menstruation a normal biological function 36
Table 13 | Outcome Indicator 1.2.5: Proportion of girls and boys that know how to dispose of menstrual material waste 37
Table 14 | Outcome Indicator 1.10: Proportion of girls who report properly disposing of absorbent materials (sanitary napkins or menstrual cloth) 38
Table 15 | Outcome Indicator 1.11 Proportion of girls who report washing and drying reusable menstrual materials 40
Table 16 | Output Indicator 1.2.4: Proportion of girls who hygienically manage menses 42
Table 17 | Outcome Indicator 1.7: Proportion of adolescents with correct knowledge about STI risk and prevention and treatment 43

Table 18 | Outcome Indicator 1.8: Proportion of adolescents with comprehensive knowledge of HIV prevention 44
Table 19 | Impact Indicator 1: Decrease in adolescent birth rate (girls ages 15-19 only) 45
Table 20 | Impact Indicator 2: Decrease in proportion of adolescents who have ever been pregnant or caused a pregnancy 46
Table 21 | Outcome Indicator 1.1: Intent to use modern contraception 47
Table 22 | Outcome Indicator 1.2: Condom use at last sex 48
Table 23 | Outcome Indicator 1.3: Consistent condom use 49
Table 24 | Outcome Indicator 1.5.A: Average number of modern contraceptive methods known among females ages 10-14 years 50
Table 25 | Outcome Indicator 1.5.B: Average number of modern contraceptive methods known among females ages 15-19 years 51
Table 26 | Impact Indicator 3A: Need for family planning satisfied with modern contraception (among sexually active married females) 52
Table 27 | Impact Indicator 3B: Need for family planning satisfied with modern contraception (among both unmarried and married sexually active females, aged 15-19) 52
Table 28 | Impact Indicator 4: Increase in adolescent modern contraceptive prevalence rate 53
Table 29 | Outcome Indicator 1.9: Knowledge of where to seek SRH services 54
Table 30 | Outcome Indicator 1.4.1: Adolescents who feel religious community leaders support adolescent girls and boys learning about puberty 57
Table 31 | Outcome Indicator 1.4.1: Adolescents who feel religious community leaders support adolescent girls and boys learning about contraception 59
Table 32 | Outcome Indicator 1.4.1: Adolescents who feel religious community leaders support adolescent girls and boys accessing sexual and reproductive health services 60
Table 33 | Outcome Indicator 1.4.2: Adolescents who feel school leaders support adolescent girls and boys learning about puberty 61
Table 34 | Outcome Indicator 1.4.2: Adolescents who feel school leaders support adolescent girls and boys learning about contraception 63
Table 35 | Outcome Indicator 1.4.2: Adolescents who feel school leaders support adolescent girls and boys accessing sexual and reproductive health services 64
Table 36 | Outcome Indicator 1.4.3: Adolescents who feel other community leaders support adolescent girls and boys learning about puberty 66
Table 37 | Outcome Indicator 1.4.3: Adolescents who feel other community leaders support adolescent girls and boys learning about contraception 67
Table 38 | Outcome Indicator 1.4.3: Adolescents who feel other community leaders support adolescent girls and boys accessing sexual and reproductive health services 68
Table 39 | Outcome Indicator 1.4: Gender equitable attitudes 72
Table 40 | Impact Indicator 5: Decrease in adolescent marriage 95
Table 41 | Year 2 Intervention Effects 99
Table 42 | ATWA Impact Indicators 103

LIST OF FIGURES

Figure 1 | Outcome Indicator 1.1: Intent to use modern contraception (by study arm) 48
Figure 2 | Community support for adolescents learning about LSE/SRHR and accessing SRH services (by age group and type of leader)..... 56
Figure 3 | Perceived appropriate people to teach adolescents about puberty (by ages of adolescents taught about puberty) 70
Figure 4 | Community members believe that adolescents should learn about puberty & reproductive health in school (by age groups of adolescents) as perceived by adolescents..... 71
Figure 5 | Agreement with gender equity statements (chore-sharing, equal education, female obedience, and pregnancy prevention)..... 73
Figure 6 | Agreement that forced sex is inappropriate by study arm, sex and age 74
Figure 7 | Agreement with statement that it is unacceptable to persuade a girlfriend into having sex by use of pressure/force..... 75
Figure 8 | Agreement with statement that there are times when a woman deserves to be beaten by her husband 76
Figure 9 | Agreement with statement that a woman should tolerate violence for the sake of her family 77
Figure 10 | Agreement with statement that if a woman is abused, it was not her fault for putting herself in that situation..... 78
Figure 11 | Self-efficacy: Trying hard can lead to improvements in life 79
Figure 12 | Agreement with statement that adolescent can ask questions about puberty to a trusted adult..... 80
Figure 13 | Proportion of adolescents agreeing they could refuse unwanted sexual attention from a stranger 81
Figure 14 | Proportion of adolescents agreeing they could refuse unwanted sexual attention from a relative or someone they knew..... 82
Figure 15 | Proportion of adolescents agreeing they could tell an adult about unwanted sexual attention they had experienced 83
Figure 16 | Self-efficacy in refusing unwanted sex with boyfriend/girlfriend..... 84
Figure 17 | Proportion of adolescents agreeing they could insist on condom use..... 85
Figure 18 | Proportion of adolescents agreeing feel confident in their ability to use contraception 86
Figure 19 | Self-efficacy in bodily autonomy 87
Figure 20 | Knowledge of peer pressure mechanism of action 88
Figure 21 | Proportion of adolescents agreeing they could resist negative peer pressure 89
Figure 22 | Proportion of adolescents agreeing that early marriage often has harmful consequences for a girl's health, psychological wellbeing and education 90
Figure 23 | Proportion of adolescents agreeing that early pregnancy often has harmful consequences for a girl's health, psychological wellbeing and education 91
Figure 24 | Proportion of adolescents agreeing they have the right to choose whether, when, and with whom to marry..... 92

Figure 25 | Proportion of adolescents agreeing they could refuse if their parents wanted them to get married..... 93
Figure 26 | Proportion of adolescents agreeing they could seek help from a trusted adult to prevent an unwanted arranged marriage..... 94
Figure 27 | Proportion of Burkinabe adolescents who have heard about female circumcision by study arm, sex, and age..... 96
Figure 28 | Proportion of Burkinabe adolescents agreeing that girls should not be circumcised by study arm, sex, and age..... 97
Figure 29 | Proportion of Burkinabe adolescents who agree that FGC causes serious physical and mental health complications for girls and women by study arm, sex, and age..... 97
Figure 30 | Proportion of Burkinabe adolescents stating FGC should *not* be continued by study arm, sex and age..... 98

LIST OF ACRONYMS AND KEY PHRASES

AE	Académie d'Enseignement (Teacher's Academy)
ASRHR	Adolescent Sexual and Reproductive Health Rights
ATWA	Adolescent Transition in West Africa
CFA	Confirmatory Factor Analysis
CRJ	Regional Youth Council
DDEN	Departmental Directorates for National Education
DHS	Demographic and Health Surveys
DiD	Difference-in-Differences Analysis
DREN	Regional Department of National Education
DRSP	Regional Department of Public Health
DS	Health districts
EFA	Exploratory Factor Analysis
FGC	Female Genital Cutting
GADDRA	Support Group for Rural Development Action Research
GAGE	Gender and Adolescence Global Evidence
GEAS	Global Early Adolescent Study
GEE	Generalized Estimating Equations
GEM	Gender Equitable Men Scale
IS	In-school
LSE	Life Skills Education
MEAL	Monitoring, Evaluation, and Learning
MELR	Mixed Effects Liner Regression
MHHM	Menstrual Health and Hygiene Management
MPNS	Menstrual Practice Needs Scale
MPQ	Menstrual Practices Questionnaire
OOS	Out-of-school
OR	Odds ratio
PE	Peer education
SRH	Sexual and reproductive health
SRHR	Sexual and Reproductive Health Rights

UCSD-GEH	University of California San Diego, Center on Gender Equity and Health
VYAs	Very young adolescents
Y/O	Year olds

BACKGROUND

The Adolescent Transition in West Africa (ATWA) program was funded by the Dutch Ministry of Foreign Affairs. The four-year program aimed to influence and promote positive adolescent sexual and reproductive health and rights (ASRHR) outcomes by addressing some of the interrelated drivers of poor sexual and reproductive health and rights among very young (ages 10-14 years) and older (ages 15-19 years) adolescents in eight regions of the Liptako Gourma area of West Africa, an area that covers eastern Burkina Faso, southwestern Niger, and a portion of southeast and central Mali.

Spanning from December 2019 until November 2023, the ATWA program sought to improve ASRHR by catalyzing the provision of Life Skills Education (LSE) in school settings, and - in Niger and Mali - outside of school settings as well.[1] Through ATWA, teachers, mentors, and peers engaged adolescent girls and boys in learning about SRHR, building critical life skills, shifting inequitable norms, and improving attitudes and behaviors related to gender and ASRHR. Alongside the provision of LSE, the program sought to increase access to, and uptake of, quality adolescent-responsive SRH services and contraception among adolescents by improving the quality and youth-friendliness of services, including the attitudes, skills and knowledge of service providers. The overall objectives of the ATWA project included:

> **Impact**: Improved sexual and reproductive health and rights of adolescents
> **Outcome 1**: Improved sexual and reproductive health and rights and gender equality knowledge, intent, and behaviors among adolescents
> **Outcome 2**: Health facilities offer quality adolescent-responsive SRH services that are used by adolescent girls and boys

Across the under-resourced and politically dynamic Liptako Gourma area of West Africa, ATWA sought to provide ASRHR information to 472,180 adolescents through 2,573 teachers in 2,148 primary schools (adolescents ages 10 to 14) and 425 secondary schools (adolescents ages 14 to 19), 48,000 out-of-school adolescents, 1,704 health workers, and 500 health centers. Additionally, the

[1] The ATWA out-of-school program was discontinued in Mali in the second year of implementation (2022) as it was a temporary measure in face of school closures due to insecurity; as such, results specific to the out-of-school program in Mali in 2022, are not reflected in this report.

program aimed to reach 212,090 girls in 2,537 schools in Niger, Mali and Burkina Faso with the information, materials, and facilities to manage their menstruation in a hygienic and dignified fashion. ATWA also aimed to provide 48,000 out-of-school adolescents in Niger and 4,368 in Mali with quality ASRHR information in small groups by mentors.

To evaluate the intervention's impact on the intended outcomes of ASRHR knowledge generation, building critical life skills, shifting inequitable norms, and improving attitudes and behaviors related to gender and ASRHR, Save the Children-Netherlands identified external research partners to design and conduct an external outcome evaluation. The ATWA research partners—the Center on Gender Equity and Health at the University of California San Diego (UCSD-GEH) and GRADE Africa—designed and led cluster randomized controlled trials (C-RCTs) at each of the two years of implementation. Within Niger, Mali, and Burkina Faso, intervention and control groups were identified and interviewed at the start and end of two full intervention school years. This report provides findings from the Year 2 endline survey conducted in May and June 2023. Findings from the Year 1 endline survey are summarized elsewhere.[2]

ATWA INTERVENTION

The ATWA in-school intervention was based on various existing MOE teacher training curricula and guidelines on life skills and SRH from each of the three countries. Save the Children complemented the existing curricula with additional topics to include a comprehensive set of ASRHR themes (summarized by country in Tables 1-3 below) for teachers to lead in school-based settings. The out-of-school ATWA intervention was based on adapted material from the Gender Roles, Equality and Transformation (GREAT!) toolkit[3] with a step-by-step guide for mentor-facilitated small group-based activities on ASRHR.

Prior to implementation, all training materials were adapted in collaboration with and validated by the countries' respective Ministries of Education before teachers and peer-educators integrated the ATWA curriculum in their lesson plans for primary and secondary students. Prior to teaching lessons in Burkina Faso, a pool of 40 trainers made up of education inspectors were trained in December 2019 on the ASRHR modules by the "Direction générale de la Recherche en Éducation

[2] Center on Gender Equity and Health. 2022. Adolescent Transitions in West Africa (ATWA) Outcome Evaluation: Year 1 Endline Report. La Jolla, CA: University of California San Diego for Save the Children.
[3] For more information on GREAT, please visit: https://resourcecentre.savethechildren.net/collection/gender-roles-equality-and-transformation-great-toolkit/ Note that the toolkit used in the ATWA program is an adapted version of GREAT

et de l'Innovation pédagogique et la Direction de la promotion de l'éducation inclusive, des filles et du genre à Ouagadougou." In Mali, trainers from the National Education Department (Direction Nationale de la Pédagogie), with technical and financial support from Save the Children, trained regional and local trainers from the Academy of Teachers (Académie d'Enseignement (AE)) and Training Center (Centre D'animation) on the ATWA curricula, who subsequently trained teachers and peer educators involved in the ATWA intervention. In Niger, representatives from the school health division of the Ministry of Education provided the training of trainers and the training for the teachers responsible for teaching the pupils, while training of the peer educators was provided by the regional directorate of national education and the school health focal point. Mentors were trained by Save the Children and partners. Ministries of Education at national and regional levels jointly supervised schools and community-based OOS groups.

While the core curricula of ATWA shares the common themes of Life Skills Education, Puberty, SRHR, and Menstrual Hygiene Management, there were substantive differences in the curricula by country, type of school (primary or secondary school), and OOS groups. These differences are summarized for each country in the tables below, and presented in greater detail in Appendices A-C. In Burkina Faso (Table 1), the same 15 thematic lessons included in the MOE curriculum were made available for primary and secondary students, and information about health services and self-efficacy was not included. In select primary and secondary schools in Mali and secondary schools in Niger, peer education was conducted.

Table 1 | Subjects included in the Burkina Faso curriculum by school type (no OOS component)

	Primary school		Secondary school	
Subject	**Included in curriculum**	**Taught by teachers**	**Included in curriculum**	**Taught by teachers**
Puberty	yes	yes	yes	yes
Menstrual Hygiene Management	yes	yes	yes	yes
HIV, STIs & Pregnancy Knowledge	yes	yes	yes	yes
Contraception	yes	yes	yes	yes
Health Services	no	no	no	no
Gender Attitudes	yes	yes	yes	yes
Gender-Based Violence	yes	yes	yes	yes
Self-Efficacy	no	no	no	no
Female Genital Cutting	yes	yes	yes	yes

As summarized in Table 2, none of the Malian adolescents learned about the consequences of Female Genital Cutting (FGC), and primary school students did not receive information related to HIV, Sexually Transmitted Infections (STIs), pregnancy prevention, or contraception, as these topics were deemed too sensitive for this age group. In-school adolescents (both primary and secondary) did not learn about peer pressure or self-efficacy related to sexual pressure. Overall, there were nine thematic lessons for primary students and 24 thematic lessons for secondary school students.

Table 2 | Subjects covered in the Mali curriculum by school type (no OOS component in Year 2)

	Primary school		Secondary school	
Subject	**Included in curriculum**	**Taught by teachers**	**Included in curriculum**	**Taught by teachers**
Puberty	yes	yes	yes	yes
Menstrual Hygiene Management	no	no	yes	yes
HIV, STIs & Pregnancy Knowledge	Only pregnancy knowledge	yes	yes	yes
Contraception	no	no	yes	yes
Health Services	no	no	no	no
Gender Attitudes	no	no	no	no
Gender-Based Violence	no	no	yes	yes
Self-Efficacy	no	no	no	no
Female Genital Cutting	no	no	no	no

In Niger (Table 3), primary and secondary school students who did not receive peer education were not taught information including HIV, sexually transmitted infections (STIs) and pregnancy, and FGC. Overall, there were 15 thematic lessons for primary students and 8 thematic lessons for secondary students. As noted in Appendix C, only OOS adolescents and secondary students who received peer education were taught information regarding child marriage.

Table 3 | Subjects included in the Niger curriculum by school type

	Primary school		Secondary school		OOS
Subject	**Included in curriculum**	**Taught by teachers**	**Included in curriculum**	**Taught by teachers**	**Included in curriculum**
Puberty	yes	yes	yes	yes	yes
Menstrual Hygiene Management	yes	yes	yes	yes	yes
HIV, STIs & Pregnancy Knowledge	no	no	no	no	yes

Contraception	yes	yes	yes	yes	yes
Health Services	no	no	no	no	no
Gender Attitudes	yes	yes	yes	yes	yes
Gender-Based Violence	no	no	yes	yes	yes
Self-Efficacy	no	no	no	no	yes
Female Genital Cutting	no	no	no	no	no

Intervention Dose

In each country, teachers were ultimately free to decide which of these lessons within the ATWA curricula they wanted to teach and how to integrate the subject matter into their broader academic curriculum, but were facilitated in doing so by teaching guides for key school subjects. Save the Children Monitoring, Evaluation, and Learning (MEAL) officers monitored and documented which lessons were taught by teacher and school. These data provide us with information on the intervention "dose" – or the proportion of lessons received by each classroom relative to the total possible lessons in the overall ATWA curriculum. Despite the potential for variation in 'dose' of the ATWA program across schools, as summarized in Table 4, all classrooms in Mali and Niger within the 25 intervention schools included in the evaluation study received 80-100% of the planned lessons. In Burkina Faso, the vast majority of ATWA intervention schools included in the evaluation study (21 out of 25 surveyed intervention schools) also received 80-100% of the planned lessons, with one school having provided 73%, and two schools having provided 53% and 50% of the planned lessons, respectively.

Table 4 | Intervention dose across each country

Dose Proportion of lessons taught by total possible lessons	**Burkina Faso** # of schools with the respective dose	**Mali** # of schools with the respective dose	**Niger** # of schools with the respective dose
0%	0 schools	0 schools	0 schools
1-19%	0 schools	0 schools	0 schools
20-39%	0 schools	0 schools	0 schools
40-59%	2 schools	0 schools	0 schools
60-79%	1 school	0 schools	0 schools
80-100%	21 schools	25 schools	25 schools

OUTCOME EVALUATION - STUDY DESIGN & METHODOLOGY

The overall objective of the evaluation study was to assess the ATWA program's impact in improving knowledge, attitudes, behavioral intentions and other precursors of behavior change related to ASRHR and menstrual hygiene and management. To assess ATWA's efficacy towards achieving these outcomes, a longitudinal cluster randomized controlled control (C-RCT) trial design was employed with baseline and endline survey assessments. Trained enumerators fielded the survey to the same respondents at Year 2 baseline (November 2022) and endline (May 2023).[4]

To match the topics covered in the ATWA curricula, topics in the baseline and endline questionnaires included questions about the following: Puberty; Menstrual Hygiene and Management; HIV, STIs & Pregnancy Knowledge; Contraception; Personal Sexual History; Health Services; Gender Attitudes & Norms; Gender-Based Violence; Self-Efficacy; Child Marriage and Female Genital Cutting (FGC). Additional information about the outcome evaluation survey is provided below in the section, 'Survey Tool Development.'

STUDY POPULATION

The ATWA intervention aimed to reach male and female very young and older adolescents, ages 10 to 14 years and 15 to 19 years, respectively. The geographic focus of the overall ATWA program was eight regions of the Liptako Gourma area, covering eastern Burkina Faso, southwestern Niger, and a portion of southeast central Mali. The intervention was implemented in: Sikasso, Gao, Mopti, and Ségou regions of Mali; Boucle de Mouhoun, Nord, and Centre-Nord regions in Burkina Faso; and the Tillabery region in Niger. The situation in the Liptako Gourma area is characterized by insecurity and violence, including against schools and health centers, and conservative attitudes towards adolescents' SRHR.

Implementation of the ATWA program during the 2022-2023 school year, in particular, continued against a backdrop of growing insecurity in the Liptako Gourma area. The central and northern regions, as well as part of the south, continued to be marked by a multifaceted crisis affecting people's livelihoods. Numerous attacks on villages and hostilities between armed actors

[4] More information on the Year 1 cross-sectional C-RCT is available in the Year 1 Evaluation Study Reports upon request from Save the Children-Netherlands.

led to the closure of schools and the displacement of people in these regions. Humanitarian access remained a major challenge in meeting the needs of these populations, due to the multiple attacks, kidnappings and risks associated with the presence of explosive devices.

In Burkina Faso, the implementation of the school year's 2022-2023 activities took place in a particularly difficult security context in certain localities in the Centre-Nord, Nord and Boucle du Mouhoun regions. According to statistics on education in emergency situations (ESU), 6,253 schools were closed due to insecurity in Burkina Faso on December 31, 2022, denying more than one million children access to school.[5] More than 641 health centers have been affected, including 211 that have been completely closed; of these, 498 schools and 73 health centers had been involved in the ATWA program. Insecurity had a major impact on project activities, with restrictions on movement for Save the Children and implementing partner staff. For example, as the project's off-road vehicles were at high risk of being targeted by the GOA, their use was restricted in the intervention zones. One of the other major effects of insecurity was the difficulty in mobilizing beneficiaries to carry out activities effectively and within the required timeframes. Heightened security risks also led to the suspension of some major activities, including monitoring and supervision visits for health services in the North and in the Boucle du Mouhoun regions. As a result, a number of students from schools that had closed were reassigned to other schools, resulting in a very high number of student enrollment in the secure host schools. This instability and resulting large class sizes may have had a negative effect on the learning outcomes of all students within these schools.

In Mali, according to a January 2023 report published by the United Nations High Commissioner for Refugees (UNHCR), there were 440,436 internally displaced people registered as of November 30, 2022.[6] Due to the socio-political and health crises that the country has experienced, collaboration with the Ministry of Education was delayed, as were the trainings for all the teachers and directors of ATWA schools (the last wave of educators received training at the end of December 2022). Despite these challenges, during the 2022-2023 school year, the ATWA approach of using school health workers from community health centers to provide reproductive health education to adolescents in schools continued but on a less regular basis; in order to complement lessons provided by teachers, community health workers provided about two

[5] Dejongh. (2023). Burkina Faso Consolidated Emergency Report 2022. UNICEF Burkina Faso. https://open.unicef.org/sites/transparency/files/2023-05/Burkina%20Faso%20CER%202022.pdf
[6] United Nations High Commissioner for Refugees (UNHCR). 2023. *Mali: Situation of Refugees, Internally Displaced Persons and Returnees*. [Dashboards & Factsheets]. https://data.unhcr.org/en/documents/details/97940

sessions per class. In collaboration with the Ministry of Education, through the National Pedagogy Directorate, training was provided to school directors which enabled them to effectively carry out their role of monitoring teachers and ensuring that sexual and reproductive health topics were taught to adolescents in the classroom.

Finally, in Niger, the ATWA program continued to face a precarious security situation in the Tillabery region. In 2022, there were 1,513 security incidents, resulting in the abduction of 717 people and the murder of 492 civilians.[7] The security situation in the region and throughout the tri-border area (Niger-Mali-Burkina) continued to deteriorate and remained volatile and unpredictable, and was marked by an upsurge in attacks and the closure of certain schools. However, it should be noted that all the ATWA intervention schools and all the intervention health centers remained open and operational in the intervention zones in Niger. To mitigate security risks, Save the Children worked closely with the following local partners: the Direction Régionale de l'Education Nationale (DREN), the Direction Régionale de la Santé Publique (DRSP), health districts (DS), the Directions départementales de l'éducation nationale (DDEN), technical services, the local implementing partner (NGO Groupe d'appui au développement rural recherche action (GADDRA) and the Conseil régional de la jeunesse (CRJ).

SURVEY TOOL DEVELOPMENT

The ATWA survey tool was developed prior to the Year 1 outcome evaluation study and subsequently refined following Year 1 Endline in preparation for the Year 2 evaluation study. UCSD-GEH led the development of the survey tool in coordination with Save the Children by drawing upon the ATWA M&E Framework (Appendix D) and each of the three country's curricula to develop survey items designed to assess evaluation indicators and other key intervention topics.

The construction of indicators for each theme was guided by the following previously-validated surveys: the 2020 edition of the Performance Monitoring for Action (PMA2020), Demographic and Health Surveys (DHS), the Johns Hopkins University's Global Early Adolescent Study (GEAS), Gender and Adolescence: Global Evidence (GAGE), Menstrual Practices Questionnaires (MPQ), and the Menstrual Practice Needs Scale (MPNS-36). The demographic indicators were

[7] Source: International NGO Safety Organisation (INSO), 2022. https://app.powerbi.com/view?r=eyJrIjoiNjEwMmE0YmUtODkwNS00ZGZkLWEwNGEtOWE3YWIwNDIxZjQ2IiwidCI6IjI2NTgzNDk4LTk4MDMtNDhkZC04YzEwLTA2YzY2NzFlNTM1OCIsImMiOjh9

defined using the PMA2020 and the GEAS, while the gender attitudes and norms indicators were defined using the GEAS after factor analysis. Contraceptive use measures among adolescents aged 10-14 and 15-19 were also defined using the GEAS. Finally, the analysis of menstruation-related practices was assessed using the MPQ. In addition, UCSD-GEH researchers in collaboration with Save the Children-Netherlands staff created new indicators reflective of the unique ATWA programmatic mandate.

The process for finalizing the survey items was iterative. After this initial development informed by existing literature in July 2021, the survey tool was circulated among Save the Children country offices in Burkina Faso, Mali, and Niger and reviewed to ensure not only that the included item topics matched the country's curricula but also to ensure cultural considerations were made in each country with respect to item wording and appropriateness of topics for adolescents, especially very young adolescents. This review process resulted in variation of the items by country and adolescent sex, age, and school status. The finalized survey was used in Year 1 baseline, with a few minor modifications made at Year 1 endline. The modifications between Year 1 baseline and endline included the addition of three questions for Malian respondents regarding whether they received SRH education from peers, teachers, or another person (survey items 908A, 908B, and 908C).

The Year 2 evaluation study expanded upon the Year 1 survey tool. Two new sections were added to assess ATWA Output Indicator 1.4: community leaders' support for provision of LSE/SRHR information and SRH services (see the ATWA M&E Framework in Appendix D). Given that a direct survey amongst adult community leaders was deemed too costly, indicators under Output 1.4 were assessed via adolescent report of: 1) perceptions of community support for ASRHR education and services, and 2) who they went to for questions about ASRHR-related matters (i.e., adolescents' support networks). In addition, Burkina Faso's Year 2 endline survey included one additional question to assess which ATWA topics/lessons Burkinabe respondents participated in during the 2022-2023 academic school year. Mali's Year 2 endline survey included three new questions to assess if respondents: 1) participated in peer education sessions in the past year, 2) if so, the number of peer education sessions they participated in, and 3) which ATWA topics/lessons they participated in during the 2022-2023 academic school year. Similarly, Niger's Year 2 endline survey included the following four new questions: 1) whether respondents participated in peer education sessions in the past year (offered only to secondary students), 2) the number of peer-education sessions they participated in, 3) which ATWA topics/lessons

respondents participated in during the 2022-2023 academic school year (for in-school adolescents), and 4) which ATWA topics/lessons respondents participated in (for out-of-school adolescents). The final Year 2 endline survey, inclusive of all survey items in each of the three countries, is presented in Appendix E.

SAMPLING FRAME

Before the Year 1 evaluation study, Save the Children, GRADE Africa, and UCSD-GEH jointly identified key demographic variables within Burkina Faso, Mali, and Niger that were hypothesized to contribute to variation in intervention effectiveness. These variables included: region, province, school type (primary/secondary), and urbanicity (rural/urban). These variables informed the sampling frame development. Based on these considerations, sampling frames of schools (for in-school adolescents) and communities (for out-of-school adolescents) were developed for each of the three countries. For each intervention site identified (i.e., a school or community), a control site was matched based on region, province, school type, and urbanicity.

The study design required that the control sites (i.e., the comparison groups for the intervention sites) be schools and communities that: 1) had not yet been targeted by the ATWA project; and 2) be a minimum of 5 kilometers away from an ATWA intervention site to minimize the potential for contamination effects between the control and intervention groups.

As indicated in the detailed baseline and endline technical reports prepared by GRADE Africa (see Appendix F1-F2), a sample of fifty schools was selected in each country, with twenty-five assigned as intervention schools and the remaining twenty-five assigned as control schools. Of the twenty-five schools in each study arm, seventeen were primary schools and eight were secondary schools. This balance between primary and secondary schools was determined based on the population targeted by ATWA (i.e., the intervention targeted more primary school students than secondary school students). Fifteen students were randomly selected at each primary school, and ten students were randomly selected at each secondary school.

Based on power calculations of outcome indicators and budget considerations, Save the Children, GRADE, and UCSD-GEH determined that it was necessary to interview 670 students for each country. Thus, as summarized in Table 5, the planned sample included a total of 2,250 adolescents for inclusion in baseline data collection, with a repeated sample of the same size planned at endline (1,125 adolescents in the intervention group and 1,125 adolescents in the control group at

each wave (baseline and endline)). Additional detail is provided in Sections 1.4-1.5 and 2.7 of GRADE Africa's Baseline Technical Report (Appendix F1).

In addition to the in-school sample, data collection was initially planned in eight communities in Mali (where schools were closed) and in eight communities in Niger (with adolescents who were not attending school). Four of the eight communities would be selected as "intervention communities" and the remaining four communities would be selected as "control communities." Fifteen adolescents would be selected in each community, for a total of 120 out-of-school adolescents in Mali and Niger, respectively. Notably, given the out-of-school ATWA program in Mali was discontinued after Year 2 baseline data collection due to increased insecurity, the intended sampling frame in Mali differed between Year 2 baseline and Year 2 endline, such that no out-of-school adolescents were surveyed at endline.

Table 5 | Planned sample of adolescents by country and school status

Region	School level	Sample Size
Burkina Faso		
Boucle du Mouhoun	Primary	180
	Secondary	40
	Total	**220**
Nord	Primary	210
	Secondary	80
	Total	**290**
Centre-Nord	Primary	120
	Secondary	40
	Total	**160**
	Overall Country Total	**670**
Niger		
Tillabery	Primary	510
	Secondary	160
	Out-of-School	120
	Overall Country Total	**790**
Mali		
Gao	Primary	120
	Secondary	40
	Out-of-School	60
	Total	**220**
Mopti	Primary	180
	Secondary	60
	Total	**240**
Ségou	Primary	120
	Secondary	40
	Out-of-School	60

	Total	**220**
Sikasso	Primary	90
	Secondary	20
	Total	**110**
	Overall Country Total	**790**
	Total Planned Sample	**2,250**

At Year 2 endline in Burkina Faso, one intervention school was not re-surveyed due to security risks; similarly, four control schools that were included in the initial sampling frame were not surveyed at endline (but these were successfully replaced). In Mali, all intervention and control schools surveyed at baseline were also surveyed at endline. In Niger, one school and one village were not surveyed (and not replaced) at endline. See Sections 2.5-2.8 of GRADE Africa's Endline Technical Report (Appendix F2) for additional detail on challenges during data collection, enumerators' strategies to overcome these challenges, and information on changes to the sampling frame.

Commitment to Ethical Research and Child Safe Programming

Study protocols were prepared and submitted to Ethics Committees in each of the three countries in addition to the UCSD Institutional Review Board (IRB) (IRB Determination #210928). The study is also registered on ClinicalTrials.gov, an online database by the U.S. National Library of Medicine of randomized trials (ClinicalTrials.gov Identifier: NCT05396664). Regional educational directors in each of the three countries were informed of the study by the GRADE Africa team, as were provincial and departmental directors. Save the Children representatives informed local school officials, as well as the administrative and customary authorities within selected communities.

In both Year 1 and Year 2 of the evaluation, and before the start of both baseline and endline data collection in each of the three countries, enumerators completed a five-day training, respectively, in which they were provided guidance and training on:

- ethical principles of research and data collection procedures;
- best practices for translation of survey questions, consent and assent forms to local languages
- safety protocols for conducting data collection in communities with heightened security risks; and

- data collection procedures using e-tablets programmed in CommCare, the mobile data collection platform.

Data Collection Procedures: Baseline and Endline

In November 2022 – before the start of Year 2 baseline data collection– study objectives and timelines for the project were shared with local authorities and school directors. Following this key stakeholder consultation process, participant lists were obtained via school directors at each school and, for out-of-school adolescents, from local authorities in Mali and Niger. The data collection team then used a Random Number Generator application to randomly select individuals from these lists.

Informed consent was obtained via parental written consent and verbal assent in local languages. In addition, care was taken to match female adolescents with female enumerators, and male adolescents with male enumerators. The sex-matched enumerator then administered the survey using electronic tablets programmed using CommCare. A monitoring and quality control tracking system for data collection was developed and updated daily.

Year 2 endline data collection occurred between May 2nd and May 20th, 2023 in Burkina Faso, between May 2nd to May 23rd, 2023 in Mali, and between May 22nd and June 10th, 2023 in Niger. In all countries, the data collection teams surveyed the same sample of adolescents who participated in Year 2 baseline data collection; for adolescents who were not available to participate or absent from school, a systematic approach for replacing them with additional adolescents was not done. Additional detail about this sampling process is provided in Sections 2.4-2.6 of GRADE Africa's Year 2 Endline Technical Report (Appendix F2).

Outcome Evaluation Indicators

The ATWA M&E Framework (provided in Appendix D) includes both monitoring and evaluation indicators. Table 6 below provides a summary of only the evaluation indicators included in the report, and the associated report sections in which they are discussed. A summary of quantitative findings by indicator is provided in tabular format for the combined sample, as well as by country, in Appendix G. In line with a behavioral theory of change, it was hypothesized that the ATWA project would lead to change on intermediate outcomes, and—over the longer-term—on the

impact indicators. As such, emphasis for the outcome evaluation in results reporting is placed on intermediate outcome indicators (1.1–1.11, 1.2.3–1.2.6, and 1.4.1–1.4.3 below). However, survey data were also generated on the long-term impact indicators (#1–5 below); as such, even though it was not hypothesized that ATWA would have an immediate impact on these long-term outcomes, results are provided in this report for sake of completeness in providing an assessment of all evaluation indicators.

Table 6 | List of ATWA outcome evaluation indicators by corresponding report section

IMPACT: Improved sexual and reproductive health and rights among adolescents		
Indicator	**Indicator Definition**	**Report Section**
[1] Decrease in adolescent birth rate *(NB: adolescent parity is used as a proxy as we do not assess births by year in this study)*	[1] The average number of births to female respondents ages 15-19	1. Demographic Characteristics
[2] Decrease in proportion of adolescents who have ever been pregnant or caused a pregnancy	[2] The percent of adolescent females who have ever been pregnant + the percent of adolescent males who have ever caused a pregnancy	1. Demographic Characteristics
[3] Increase in need for family planning satisfied with modern contraception	[3A] Percentage of [sexually active] adolescents age 15-19 years currently married or in union who have their need for family planning satisfied with modern contraceptive methods	5. Contraception & Sexual Activity
	[3B] Percentage of female adolescents (15-19) who are sexually active and who have their need for contraception satisfied with modern methods	5. Contraception & Sexual Activity
[4] Increase in adolescent modern contraceptive prevalence rate (CPR)	[4] The percent of sexually active adolescents (15-19) who are currently using (or whose partner is using) a modern contraceptive method. “Currently” is defined as 'at last sex'.	5. Contraception & Sexual Activity
[5] Decrease in proportion of adolescents married	[5A] Percentage of women 10-19 years old who were married or in union before age 18. *[Note: this is the percentage of the* sample *living with spouse before age 18.]*	1. Demographic Characteristics & 11. Child Marriage
	[5B] Percentage of women 10-19 years old who were married or in union before age 15. *[Note: this is the percentage of the* sample *living with spouse before age 15.]*	1. Demographic Characteristics & 11. Child Marriage

Outcome 1: Improved sexual and reproductive health and rights and gender equality knowledge, intent, and behaviors among adolescents		
Indicator	**Indicator Definition**	**Report Section**
[1.1] Proportion of adolescents with intent to use modern contraception	Number of adolescents who respond yes to planning to use modern contraception in the future [timeframe may be defined by country program], disaggregated by method	5. Contraception & Sexual Activity
[1.2] Proportion of sexually active adolescents reporting using a condom at last sex	*Numerator*: Number of adolescents who respond yes to having used a condom at last sex *Denominator*: Number of sexually active adolescents surveyed	5. Contraception & Sexual Activity
[1.3] Proportion of sexually active unmarried adolescents who use a condom consistently in the last 6 months	*Numerator:* Number of adolescents who respond yes to having used a condom every time they had sex in the last 6 months *Denominator:* Number of adolescents surveyed who are sexually active and unmarried	5. Contraception & Sexual Activity
[1.4] Proportion of adolescents with gender equitable attitudes through average score on gender equitable attitude scale	*Numerator:* Proportion of adolescents with significant increase in average score on gender equitable attitude scale *Denominator:* Number of adolescents surveyed	7. Gender Attitudes & Norms
[1.5] Average number of modern contraceptive methods known among women 10-14 and 15-19 years old	Average number of modern contraceptive methods known to female adolescents ages 10-14 and 15-19 in the survey	5. Contraception & Sexual Activity
[1.6] Proportion of adolescents with correct knowledge about body changes during puberty, the menstrual cycle, fertility and conception, pregnancy risk and prevention	Composite indicator of 9 items measuring proportion of adolescents who respond correctly to a series of questions on puberty, menstruation, pregnancy risk and prevention	2. Puberty
[1.7] Proportion of adolescents with correct knowledge about STI risk and prevention and treatment	Composite indicator measuring proportion of adolescents who responded correctly to series of 4 questions on STI prevention and treatment	4. HIV, STI, & Pregnancy Knowledge
[1.8] Proportion of adolescents with comprehensive knowledge of HIV prevention	Composite indicator measuring proportion of adolescents who responded correctly to series of 6 questions on HIV prevention	4. HIV, STI, & Pregnancy Knowledge
[1.9] Proportion of adolescents with knowledge of where to seek SRH services, including where to get tested for HIV, where to get condoms, and where to get contraceptives	*Numerator*: Proportion of adolescents that knows where to seek SRH services. *Denominator*: Number of adolescents surveyed	6. Access to Health Services

[1.10] Proportion of girls who report properly disposing of absorbent materials (sanitary napkins or menstrual cloth)	*Numerator:* Number of postmenarchal girls who report properly disposing of absorbent materials (sanitary napkins or menstrual cloth) (i.e., putting into the rubbish) *Denominator:* Number of girls who use absorbent materials (sanitary napkins or menstrual cloth)	3. Menstrual Hygiene & Management: Knowledge & Behavior
[1.11] Proportion of girls who report hygienically washing and drying reusable menstrual cloth	*Numerator*: Number of girls who report hygienically washing and drying reusable menstrual cloth *Denominator*: Number of girls who washed and reused menstrual materials	3. Menstrual Hygiene & Management: Knowledge & Behavior
Output 1.2: Adolescent girls in Niger, Mali and Burkina Faso, and out of school adolescent girls in Niger have the knowledge, materials, and in-school facilities to manage their menstruation in a hygienic, healthy, and dignified fashion		
Indicator	**Indicator Definition**	**Report Section**
[1.2.3] Proportion of girls and boys that can answer a basic set of four questions about menstruation	*Numerator:* Number of girls and boys that can answer a basic set of questions about menstruation correctly *Denominator:* Surveyed adolescents	2. Puberty
[1.2.4] Proportion of girls who hygienically manage menses	*Numerator:* Number of girls that respond affirmatively to engaging in five behaviors linked to hygienically managing menses *Denominator*: Postmenarchal girls	3. Menstrual Hygiene & Management: Knowledge & Behavior
[1.2.5] Proportion of girls and boys aged 10 to 19 that know how to dispose of menstrual material waste	*Numerator:* Proportion of girls and boys aged 10 to 19 that can answer a question correctly about the correct disposal of menstrual material waste *Denominator:* Number of targeted adolescents aged 10 to 19 with LSE/MHM education	3. Menstrual Hygiene & Management: Knowledge & Behavior
[1.2.6] Proportion of girls and boys that can identify that menstruation is a normal biological function of the female body	*Numerator*: Number of girls and boys that answer a question correctly regarding that menstruation is a normal biological function of the female body *Denominator:* Surveyed adolescents	2. Puberty
**Indicators not included in this list are assessed using monitoring data and are not included in this report.*		
Output 1.4: Communities demonstrate support for LSE and SRH services for adolescents ***Only adolescents were surveyed in the ATWA Outcome Evaluation. As such, indicators under Output 1.4 are assessed via adolescents' perceptions of community support.***		
Indicator	**Indicator Definition**	**Report Section**
[1.4.1] Proportion of adolescents who feel religious community leaders support the provision of LSE/SRHR	Proportion of adolescents who feel religious community leaders support adolescents ages 10-14 and 15-19 years:	7. Community Support

information and SRH services to adolescents ages 10-14 and 15-19 years	▪ learning about puberty/life skills education ▪ learning about reproductive health and contraception ▪ accessing sexual and reproductive health services	
[1.4.2] Proportion of adolescents who feel school leaders support the provision of LSE/SRHR information and SRH services to adolescents ages 10-14 and 15-19 years	Proportion of adolescents who feel school leaders support adolescents ages 10-14 and 15-19 years: ▪ learning about puberty/life skills education ▪ learning about reproductive health and contraception ▪ accessing sexual and reproductive health services	7. Community Support
[1.4.3] Proportion of adolescents who feel other community leaders support the provision of LSE/SRHR information and SRH services to adolescents ages 10-14 and 15-19 years	Proportion of adolescents who feel other community leaders support adolescents ages 10-14 and 15-19 years: ▪ learning about puberty/life skills education ▪ learning about reproductive health and contraception ▪ accessing sexual and reproductive health services *(Indicators are disaggregated by primary and secondary school status)*	7. Community Support

Other Measures

In addition to the primary indicators in the M&E Framework (as outlined above in Table 6), this report also provides information on gender-based violence, self-efficacy, and FGC in Sections 9, 10 and 12, respectively. These topics were not included in the project's M&E framework, but given their role in the ATWA curricula, this information is included to provide a more holistic view of the program above and beyond what was included in the M&E Framework.

STATISTICAL ANALYSES

As noted above, UCSD-GEH used a longitudinal cluster randomized controlled trial design for the outcome evaluation. In other words, we have data from the same adolescents at baseline and endline from both the intervention and control groups. This study design is one of the strongest available to enable causal inference of intervention impact. Our analysis of these data uses a

difference-in-differences (DiD) approach, to compare the changes in each outcome over time (from baseline and endline) between the intervention and control groups. We use this DiD approach within hierarchical mixed effects regression models to account for intracluster correlation, or the similarities on outcome measures within a cluster. In the case of this study, clustering—or similarities on outcome measures within a measured unit of analysis—is found within individuals (i.e., the adolescent respondents) due to the longitudinal design and within the adolescents' schools due to the sampling frame (i.e., adolescents were sampled from within schools). In addition to examining differences between the control and intervention groups (what we call the "main effects"), we also use interaction terms in statistical models to assess whether there were differential trends between the intervention and control groups by sex, age group, school status, and marital status. If a significant interaction effect was found, the data were further disaggregated and assessed for intervention effect by strata (e.g., males/females).

Binary outcome measures (i.e., indicators that assess proportions) were analyzed using mixed effects logistic regression, and odds ratios (ORs) are presented. Continuous outcome measures (i.e., indicators that assess averages) were analyzed using mixed effects linear regression, and means are presented.

Primary analyses as presented in this report were conducted on an intention-to-treat (ITT) basis, meaning that all study participants are analyzed in the groups to which they were originally assigned (i.e., control and intervention groups) before conducting the trial. Thus, adolescents in the intervention arm are assessed as having received the full intervention regardless of their actual 'dose' of the program (i.e., how many and which sessions they attended). Given the high dose received in each of the ATWA classrooms (see Table 4 above), these ITT analyses would largely mirror per protocol analyses.

For the other measures on gender-based violence, self-efficacy and FGC in Section 9, 10 and 12, respectively, results are provided via descriptive statistics using only endline data and findings from omnibus chi-square tests ($\chi 2$). As such, the findings in these sections are not as strong or conclusive as those made using DiD analytic approaches that we undertook to evaluate the primary ATWA Impact and Outcome Indicators. Sections 9, 10, and 12 are included as additional information about the study population's views on the topics of gender-based violence, self-efficacy, and FGC but should not be used to assess ATWA's impact.

Finally, we also conduct omnibus chi-square tests ($\chi 2$) with endline data to test for statistically significant differences in outcomes between adolescents who received peer education and those that did not.

Results Tables: Interpretation Guide

Indicator tables within the report provide results for both main effects (i.e., the intervention effect for the entire sample of adolescents) and interaction effects (i.e., the intervention effect for specific sub-groups of adolescents). As shown in an example table (Table 7 below), the main effect is shown first and includes: 1) Descriptive statistics—unadjusted baseline and endline values of the outcome measures for the intervention and control groups; and 2) Difference-in-Differences (DiD) regression results—results from the mixed effects models assessing the differences between the control and intervention groups from baseline to endline.

Interaction effects models indicate whether there were differential intervention effects by four adolescent sub-groups: sex (male/female); age group (10-14/15-19); school status (in-school/out-of-school); and marital status (married/single). If the interaction term was not statistically significant (i.e., $p>0.05$), this is an indication that there were no statistically significant differences in intervention effect by sub-group (sex, age, school or marital status). As such, only in the event of a statistically significant interaction term are results disaggregated by stratifying variable (sex, age, school or marital status).

The columns within the spreadsheet are as follows (please see Table 7 below for an example):

- The column titled 'N' provides the sample sizes by study arm in the main effects results, or, in the case of the interaction models, for the endline sample.
- The column titled 'Baseline (B)' provides the descriptive statistics of either the mean (in the case of continuous outcome variables) or the proportion (in the case of binary outcome variables) at baseline.
- The column title 'Endline (E)' provides the descriptive statistics of either the mean (in the case of continuous outcome variables) or the proportion (in the case of binary outcome variables) at endline.
- The column title 'Difference (E – B)' is the difference in either the mean or the proportion between baseline and endline.
- The column titled 'Coefficient/OR' provides the results from the beta parameters from DiD analyses (for both the main effect and interaction models). These parameters are either

the coefficient (the mean of a continuous outcome measure such as score on a scale) for linear regression, or the odds ratio (OR) for logistic regression (binary outcomes), indicating the odds that the intervention group had the outcome relative to the control group. Cells that do not contain 'OR' are results from a continuous measure.

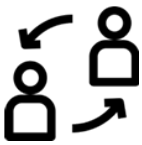
- The column titled '95% CI' represents the 95% confidence interval surrounding the parameter estimates.
- Finally, the column titled 'p-value' contains the p-values. Any p-values that are less than 0.05 (the threshold for statistical significance) are denoted in bold font.

Table 7 | Example of results table

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	355	25.4%	34.6%	9.2%	OR=2.63	(1.62, 4.28)	**p < 0.001**
Intervention	354	17.5%	41.8%	24.3%			
Interaction Terms							
sex (M, F) * study arm	709				OR=1.20	(0.74, 1.95)	p = 0.467
age (<15, >=15) * study arm	709				OR=0.78	(0.37, 1.67)	p = 0.527
school status (OOS, IS) * study arm	709				OR=0.65	(0.17, 2.44)	p = 0.525
marital status (single, married) * study arm	709				OR=0.28	(0.07, 1.13)	p = 0.074

Note that in certain circumstances, the data did not permit regression analysis as denoted using 'NA.' Common reasons for this include: 1) a category predicted 'failure' perfectly – for example when *no* adolescents in the control group at endline reported experiencing the outcome; 2) a category predicted 'success' perfectly – when *all* adolescents in the intervention reported experiencing the outcome[8]; and 3) the sample size of a given outcome measure was too small (<10) and resulted in unstable estimates. These issues were most commonly seen in ATWA's long-term outcomes, for example the number of births among adolescents ages 10-14 years. In addition, a very small proportion of adolescents in the study were married. Given the very small sample of married respondents, analyses disaggregated by marital status, when not resulting in 'NA,' should still be interpreted with caution due to the very small sample size.

[8] This problem arises because logistic regression relies on maximum likelihood estimation, and under the circumstances seen with 'perfect prediction' or 'perfect failure' within a given category, the maximum likelihood estimate of the coefficient is (positive or negative) infinity. Thus, an effect may exist in the population, but our sample data are not sufficiently robust to identify the effect empirically.



Instances in which there were statistically significant differences in outcomes between those in the intervention group who received peer education and those that did not are indicated with the peer education icon (shown at left).

YEAR II OUTCOME EVALUATION – BASELINE AND ENDLINE RESULTS

Overall, a total of 2,113 adolescents participated in the Year 2 Baseline Survey across the three intervention countries (Burkina Faso, Mali, Niger), with a total of 1,998 of these adolescents interviewed at Year 2 Endline (a 94.6% follow-up rate). As such, most but not all, adolescents surveyed at baseline were also surveyed at endline. Reasons as to why some adolescents were not surveyed at endline are largely due to students being absent from school on the day of the survey and instability/insecurity of the areas surveyed. These challenges are described in greater depth within section 2.8 of GRADE Africa's Endline Technical Report (Appendix F2).

1. SOCIO-DEMOGRAPHIC CHARACTERISTICS

The average age of respondents across the three intervention countries (Burkina Faso, Mali, Niger) at the time of the endline survey was 13.3 years (min= 9 years, max 19 years), with 73.9% (n=1,477) of respondents between the ages of 10-14 years and 26.1% (n=521) between the ages of 15-19 years. This oversample of younger adolescents was in line with the ATWA program design of reaching more younger than older adolescents. There was an even balance of boys and girls in the sample, with 981 boys (49.1% of the total sample) and 1,017 girls (50.9%) included in the sample. The vast majority (98.5%) of adolescents were unmarried. Among married adolescents, only one was between the ages of 10 and 14 years. As noted in the methods section above, given the very small sample of married respondents (n=30), analyses disaggregated by marital status should be interpreted with caution. Respondent characteristics by study wave (baseline/endline) are provided in Table 8, whereas respondent characteristics by study group (control/intervention) at endline are provided in Table 9.

Table 8 | Respondent characteristics by study wave in Year 2 evaluation

	Year 2 Baseline (N = 2,113)	**Year 2 Endline** (N = 1,998)
Sex		
Male	1,061 (50.2%)	981 (49.1%)
Female	1,052 (49.8%)	1,017 (50.9%)
Age		
10-14 years	1,554 (73.5%)	1,477 (73.9%)
15-19 years	559 (26.5%)	521 (26.1%)
School Status		
Out-of-School	120 (5.7%)	93 (4.7%)
Primary	1,513 (71.6%)	1,453 (72.7%)
Secondary	480 (22.7%)	452 (22.6%)
Marital Status		
Unmarried	2,081 (98.5%)	1,968 (98.5%)
Married	32 (1.5%)	30 (1.5%)

Table 9 | Respondent characteristics by study group at Year 2 Endline

	Control Group (N = 1,011)	**Intervention Group** (N = 987)
Sex		
Male	493 (48.8%)	488 (49.4%)
Female	518 (51.2%)	499 (50.6%)
Age		
10-14 years	745 (73.7%)	732 (74.2%)
15-19 years	266 (26.3%)	255 (25.8%)
School Status		
Out-of-school	54 (5.3%)	39 (4%)
Primary	725 (71.7%)	728 (73.8%)
Secondary	232 (22.9%)	220 (22.3%)
Marital Status		
Not Married	997 (98.6%)	971 (98.4%)
Married	14 (1.4%)	16 (1.6%)

2. PUBERTY

Outcome 1 of the ATWA intervention is sexual and reproductive health and rights and gender equality knowledge, intent, and behaviors among adolescents. Output 1.2 of the ATWA intervention is that adolescent girls in Niger, Mali and Burkina Faso have the knowledge,

materials, and in-school facilities to manage their menstruation in a hygienic, healthy, and dignified fashion. Outcome 1 and Output 1.2 are assessed via three indicators (1.6, 1.2.3, 1.2.6) on adolescent girls' and boys' knowledge of: body changes during puberty, fertility, and menstruation.

Outcome Indicator 1.6: Knowledge about body changes during puberty, the menstrual cycle, and fertility

Outcome indicator 1.6 is the proportion of adolescents with correct knowledge about body changes during puberty, the menstrual cycle, fertility and conception, pregnancy risk and prevention. This was assessed using a composite indicator which measured the proportion of adolescents who responded correctly to the following nine questions:

- 401: True or false: It is normal that each adolescent boy and girl experiences changes in their body at different times as they grow up.
- 403: True or false: Only girls go through puberty, not boys.
- 404: True or false: It is normal for a young teenager to wake up and find that he has wet his underwear through ejaculation.
- 405: True or false: Boys grow hair on their face, bodies, and genital areas as they go through puberty.
- 614: True or false: A boy can get a girl pregnant before he has his first (ever) ejaculation. (Modified for Malian respondents to read: True or false: A boy can get a girl pregnant before the start of puberty.)
- 615: True or false: A boy can be fertile every day of the month.
- 616: True or false: It is normal for a girl to have periods that don't come at the same time each month.
- 617: When in the menstrual cycle is a girl is most likely to get pregnant if she has sex?
    - Options: During menstruation; In the first 10 days of the cycle; During ovulation; In the last 10 days of the cycle; Other; Don't know; Refused
- 618: Which of the following statements is true about pregnancy?
    - Options: You cannot get pregnant or cause a pregnancy if you are not in love; You cannot get pregnant having sex standing up; Having sex for the first time cannot cause a pregnancy; All of the above are false; Other; Don't know; Refused

As shown in Appendix E, all Nigerien respondents were asked all nine questions. Malian in-school adolescents ages 10-14 years were not asked 614, 616, and 617, and none of the Malian

respondents were asked about 618, due to concerns regarding the sensitive nature of these questions. Burkinabe adolescents ages 15-19 years were asked all nine questions, whereas Burkinabe adolescents ages 10-14 years were not asked question 617, as this was deemed too sensitive by local stakeholders. Table 10 presents results among adolescents who responded to all nine questions (don't know and refused responses were treated as missing).

As shown in the main effects section of Table 10, there was a 10.1 percentage point increase from baseline to endline among control group adolescents and a 22.1 percentage point increase from baseline to endline among intervention group adolescents on knowledge about body changes during puberty, the menstrual cycle, fertility and conception, pregnancy risk and prevention. This difference in change between the two study arms over time was statistically significant, indicating that participation in the ATWA intervention was associated with adolescents being 2.6 times more likely to have accurate knowledge about puberty (OR=2.63, p<0.001). Interaction effects by sex, age, school status and marital status were not statistically significant (p=0.888, p=0.796, p=0.805 and p=0.056, respectively). No differences were seen between adolescents in the intervention group who received peer education and those who did not.

Table 10 | Outcome Indicator 1.6: Knowledge about body changes during puberty, the menstrual cycle, and fertility

(Proportion of adolescents answering all 9 questions correctly)

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	435	34.5%	44.6%	10.1%	OR=2.63	(1.66, 4.18)	**p < 0.001**
Intervention	420	27.9%	50.0%	22.1%			
Interaction Terms							
sex (M, F) * study arm	855				OR=0.97	(0.61, 1.52)	p = 0.888
age (<15, >=15) * study arm	855				OR=0.89	(0.37, 2.14)	p = 0.796
school status (OOS, IS) * study arm	855				OR=0.75	(0.07, 7.60)	p = 0.805
marital status (single, married) * study arm	855				OR=0.25	(0.06, 1.04)	p = 0.056

Output Indicator 1.2.3: Knowledge and beliefs about menstruation

To assess output indicator 1.2.3, a series of three basic questions about menstruation were posed to all respondents in each of the three countries. These included:

- 402: True or false: For most girls their monthly bleeding comes every 14 days.
- 407: True or false: Menstruation is dirty or impure.
- 408: True or false: Used sanitary napkins can be used to cast a spell.

This indicator assesses whether adolescents were able to answer at least two out of the three questions correctly. As indicated in Table 11, there was an 8.2 percentage point increase among adolescents in the control group between baseline and endline and 26.9 percentage point increase among adolescents in the intervention group for answering at least two out of the three questions about menstruation correctly. This difference was statistically significant, indicating that participation in the ATWA intervention was associated with adolescents being 2.6 times more likely to have accurate knowledge about menstruation (OR=2.62, p<0.001). The model assessing interaction effects by sex was found to be statistically significant (p<0.001), and though intervention effects were statistically significant for both boys and girls, it was stronger for male participants, indicating that the ATWA intervention was associated with boys being 3.7 times and girls being 2.5 times more likely to answer at least two of the three questions correctly (male OR=3.7, p<0.001; female OR=2.52, p<0.001). Interaction effects by age, school status and marital status were not statistically significant (p=0.583, p=0.853, and p=0.744, respectively). No differences were seen between adolescents in the intervention group who received peer education and those who did not.

Table 11 | Output Indicator 1.2.3: Knowledge and beliefs about menstruation

(Proportion of girls and boys that can answer a basic set of four questions about menstruation)

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	1011	16.4%	24.6%	8.2%	OR=2.62	(1.90, 3.62)	**p < 0.001**
Intervention	987	19.3%	46.2%	26.9%			
Interaction Terms							
sex (M, F) * study arm	1998				OR=0.52	(0.38, 0.71)	**p < 0.001**
Male (M)							
Control	493	13.6%	16.0%	2.4%	OR=3.71	(2.28, 6.03)	**p < 0.001**
Intervention	488	18.4%	44.9%	26.5%			
Female (F)							
Control	518	19.2%	32.8%	13.6%	OR=2.52	(1.57, 4.04)	**p < 0.001**
Intervention	499	20.3%	47.5%	27.2%			
age (<15, >=15) * study arm	1998				OR=1.20	(0.63, 2.29)	p = 0.583
school status (OOS, IS) * study arm	1998				OR=1.19	(0.19, 7.61)	p = 0.853
marital status (single, married) * study arm	1998				OR=0.76	(0.14, 4.03)	p = 0.744

Output Indicator 1.2.6: Menstruation a normal biological function

Output Indicator 1.2.6 is the proportion of girls and boys that can identify that menstruation is a normal biological function of the female body. To assess this indicator, all respondents in each of

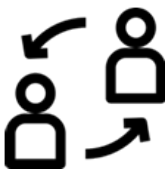
the three countries were asked to respond to a true/false item stating that if a girl bleeds from her vagina every month, it is a sign of disease.

As shown in the main effects section of Table 12, between baseline and endline there was a 10.7 percentage point increase among adolescents in the control group and a 26.7 percentage point increase among adolescents in the intervention group on those who correctly identified that menstruation is a normal biological function of the female body. This difference was statistically significant, indicating that participation in the ATWA intervention was associated with adolescents being 2.8 times more likely to know that menstruation is a normal biological function of the female body (OR=2.82, p<0.001). No differential intervention effects on this indicator were seen by sex, age, school status or marital status.

Table 12 | Output Indicator 1.2.6: Menstruation a normal biological function

(Proportion of girls and boys that can identify that menstruation is a normal biological function of the female body)

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	1009	47.9%	58.6%	10.7%	OR=2.82	(2.10, 3.78)	**p < 0.001**
Intervention	987	56.9%	83.6%	26.7%			
Interaction Terms							
sex (M, F) * study arm	1996				OR=0.78	(0.58, 1.04)	p = 0.087
age (<15, >=15) * study arm	1996				OR=0.68	(0.39, 1.19)	p = 0.174
school status (OOS, IS) * study arm	1996				OR=1.68	(0.38, 7.39)	p = 0.491
marital status (single, married) * study arm	1996				OR=1.02	(0.27, 3.87)	p = 0.974



We found statistically significant differences between adolescents in the intervention group who received PE and those who did not; 82.4% of adolescents in the intervention group who did *not* receive PE know that menstruation is a normal biological function of the female body as compared to 89.5% of adolescents who *did* receive PE (p=0.039).

3. MENSTRUAL HYGIENE & MANAGEMENT: KNOWLEDGE & BEHAVIOR

Proper menstrual hygiene and management among adolescent girls is a key component of the ATWA intervention in each of the three countries. This aspect of the project is assessed via one indicator asked of both boys and girls on knowledge of how to dispose of menstrual materials, and three indicators that examine girls' behaviors surrounding disposal and washing of menstrual

materials and hygienically managing menses. Survey questions about menstrual hygiene and management were asked only of postmenarchal girls, which was a total of 370 (36.4%) of the 1,017 girls in the ATWA combined endline sample.

Output Indicator 1.2.5: Knowledge of proper menstrual waste disposal

Output Indicator 1.2.5 is the proportion of girls and boys that know how to dispose of menstrual material waste. To assess this indicator, all respondents in each of the three countries were asked to respond to a true/false item stating that non-reusable menstrual hygiene materials such as pads or tampons should be wrapped and thrown in the garbage after use.

As shown in the main effects section of Table 13, between baseline and endline there was a 6.0 percentage point decrease among control group adolescents and a 0.4 percentage point increase among intervention group adolescents on knowledge of proper disposal of menstrual material waste. This difference was statistically significant, indicating that participation in the ATWA intervention was associated with adolescents being 1.4 times more likely to know how to dispose of menstrual material waste (OR=1.35, p=0.034). No differential intervention effects on this indicator were seen by sex, age, school status or marital status. No differences were seen between adolescents in the intervention group who received peer education and those who did not.

Table 13 | Outcome Indicator 1.2.5: Proportion of girls and boys that know how to dispose of menstrual material waste

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	1011	67.7%	61.7%	-6.0%	OR=1.35	(1.02, 1.78)	**p = 0.034**
Intervention	987	71.5%	71.9%	0.4%			
Interaction Terms							
sex (M, F) * study arm	1998				OR=1.04	(0.78, 1.38)	p = 0.781
age (<15, >=15) * study arm	1998				OR=1.25	(0.76, 2.06)	p = 0.382
school status (OOS, IS) * study arm	1998				OR=1.00	(0.29, 3.43)	p = 0.996
marital status (single, married) * study arm	1998				OR=0.46	(0.13, 1.63)	p = 0.229

Outcome Indicator 1.10: Proper disposal of menstrual materials

Outcome Indicator 1.10 is the proportion of girls who report properly disposing of absorbent materials (sanitary napkins or menstrual cloth) (i.e., putting used materials into the

trash/rubbish). To assess this indicator, all postmenarchal girls in each of the three countries were asked where they most often disposed of their used menstrual materials during their last period.

Evaluation results are shown in Table 14. In the control group, a 2.0 percentage point decrease was observed in the proportion of girls who report properly disposing of absorbent materials, compared to a 5.5 percentage point increase in the intervention group. The difference in change between the study arms over time, however, was not statistically significant (OR=2.03, p=0.292) likely due to the relatively small sample size of girls responding to this item (n=306). The interaction models exploring differences by age, school status and marital status were not significant (p=0.053, p=0.675, and p=0.427, respectively). No interaction model was run for differences pertaining to sex as this indicator was only asked to females. No differences were seen between adolescents in the intervention group who received peer education and those who did not.

Table 14 | Outcome Indicator 1.10: Proportion of girls who report properly disposing of absorbent materials (sanitary napkins or menstrual cloth)

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	160	8.2%	6.2%	-2.0%	OR=2.03	(0.54, 7.57)	p = 0.292
Intervention	146	6.8%	12.3%	5.5%			
Interaction Terms							
sex (M, F) * study arm	This indicator pertains only to females, and as such we did not test for differential impact by sex.						
age (<15, >=15) * study arm	306				OR=5.73	(0.98, 33.61)	p = 0.053
school status (OOS, IS) * study arm	306				OR=0.50	(0.02, 13.03)	p = 0.675
marital status (single, married) * study arm	306				OR=3.19	(0.18, 55.81)	p = 0.427

Outcome Indicator 1.11: Washing and drying of reusable materials

Outcome indicator 1.11 is the proportion of girls who report hygienically washing and drying reusable menstrual materials, as assessed using five different survey items. No interaction models were run for sex as these questions were asked only to female participants. Main effects and interaction effects by age, school status and marital status results are presented below.

As seen in Table 15 1.11.A, there was a 2.5 percentage point decrease in girls reporting washing and drying their reusable menstrual materials in the control group, compared to a 7.1 percentage point increase seen in the intervention group. The difference in change between the study arms over time was not significant, however (OR=1.75, p=0.308), likely due to the small sample size

(n=157). The interaction models assessing differences observed by age, school status and marital status were not significant (p=0.458, p=0.631, and p=0.712, respectively).

Table 15 1.11.B shows that there was a 0.5 percentage point decrease in girls reporting the use of soap when soaking their menstrual materials in the control group, compared to a 0.2 percentage point increase in the intervention group. The model assessing the difference in change between the study arms over time was not significant, however (p=0.961). The interaction model assessing the difference observed by age was not significant (p=0.432), and the interaction models exploring differences across school and marital status did not converge.

Table 15 1.11.C shows that in the control group, there was a 5.5 percentage point decrease in girls reporting exposing their materials to the sun every time when drying them, while this was a 34.3 percentage point increase in the intervention group. This difference was statistically significant, indicating that participation in the ATWA intervention was associated with adolescent girls being nearly 9.0 times more likely to report exposing their materials to the sun every time when drying them (OR=8.80, p=0.001). No differential intervention effects on this indicator were seen by age or school status (p=0.868 and p=0.695, respectively), and the interaction model exploring differences by marital status did not converge.

Table 15 1.11.D demonstrates that in the control group, there was a 10.3 percentage point decrease in girls reporting that they waited for their materials to be dry before reusing them, compared to a 3.0 percentage point increase in the intervention group. The model assessing the difference in change between the study arms over time was not statistically significant (p=0.065), likely due to the small sample size (n=156). The interaction models assessing differences observed by age, school status and marital status were not significant (p=0.947, p=0.828, and p=0.545, respectively).

Table 15 1.11.E highlights that in the control group, there was a 3.8 percentage point decrease in girls reporting ever using an iron on menstrual materials before re-use, compared to the 15.3 percentage point increase seen in the intervention group. This difference was statistically significant, indicating that participation in the ATWA intervention was associated with adolescent girls being 7.2 times more likely to report ever using an iron on menstrual materials before re-use (OR=7.17, p=0.019). The interaction model assessing the difference observed by age was not

significant (p=0.562), and the interaction models exploring differences by school and marital status did not converge.

Table 15 | Outcome Indicator 1.11 Proportion of girls who report washing and drying reusable menstrual materials

1.11.A: Girls who soaked menstrual materials among those who washed/reused materials							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	72	74.7%	72.2%	-2.5%	OR=1.75	(0.60, 5.13)	p = 0.308
Intervention	85	74.1%	81.2%	7.1%			
Interaction Terms							
sex (M, F) * study arm	This indicator pertains only to girls, and as such we did not test for differential impact by sex.						
age (<15, >=15) * study arm	157				OR=1.57	(0.48, 5.12)	p = 0.458
school status (OOS, IS) * study arm	157				OR=0.63	(0.10, 4.05)	p = 0.631
marital status (single, married) * study arm	157				OR=0.68	(0.09, 5.26)	p = 0.712

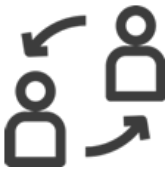
1.11.B: Girls who used soap when soaking menstrual materials							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	72	94.9%	94.4%	-0.5%	OR=0.95	(0.12, 7.55)	p = 0.961
Intervention	85	95.1%	95.3%	0.2%			
Interaction Terms							
sex (M, F) * study arm	This indicator pertains only to girls, and as such we did not test for differential impact by sex.						
age (<15, >=15) * study arm	157				OR=2.56	(0.25, 26.64)	p = 0.432
school status (OOS, IS) * study arm	NA				NA	NA	NA
marital status (single, married) * study arm	NA				NA	NA	NA

1.11.C: Girls who exposed menstrual materials to the sun every time when drying them							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	72	29.1%	23.6%	-5.5%	OR=8.80	(2.58, 29.97)	**p = 0.001**
Intervention	85	21.0%	55.3%	34.3%			
Interaction Terms							
sex (M, F) * study arm	This indicator pertains only to girls, and as such we did not test for differential impact by sex.						
age (<15, >=15) * study arm	157				OR=1.13	(0.27, 4.65)	p = 0.868
school status (OOS, IS) * study arm	157				OR=0.52	(0.02, 13.70)	p = 0.695
marital status (single, married) * study arm	NA				NA	NA	NA

1.11.D: Girls who reported their menstrual materials were always dry before reusing them

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	71	96.2%	85.9%	-10.3%	OR=4.96	(0.90, 27.18)	p = 0.065
Intervention	85	86.4%	89.4%	3.0%			
Interaction Terms							
sex (M, F) * study arm	This indicator pertains only to girls, and as such we did not test for differential impact by sex.						
age (<15, >=15) * study arm	156				OR=0.94	(0.16, 5.50)	p = 0.947
school status (OOS, IS) * study arm	156				OR=1.22	(0.20, 7.64)	p = 0.828
marital status (single, married) * study arm	156				OR=0.43	(0.03, 6.68)	p = 0.545

1.11.E: Girls who reported ever using an iron on menstrual materials before re-use							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	71	10.8%	7.0%	-3.8%	OR=7.17	(1.38, 37.29)	**p = 0.019**
Intervention	85	7.1%	22.4%	15.3%			
Interaction Terms							
sex (M, F) * study arm	This indicator pertains only to girls, and as such we did not test for differential impact by sex.						
age (<15, >=15) * study arm	156				OR=1.63	(0.31, 8.57)	p = 0.562
school status (OOS, IS) * study arm	NA				NA	NA	NA
marital status (single, married) * study arm	NA				NA	NA	NA



We found statistically significant differences between adolescents in the intervention group who received PE and those who did not for only one of these behaviors related to cleaning of menstrual materials: sun exposure. Supplemental analyses with the peer education data show that 12.5% of adolescent girls in the intervention group who did *not* receive PE reported exposing their menstrual materials to the sun before re-wearing them as compared to 53.9% of girls who *did* receive PE (p=0.007).

Output Indicator 1.2.4: Hygienically managing menses

Output indicator 1.2.4 is the proportion of girls who hygienically manage menses. This was evaluated using a composite indicator which measured the proportion of girls who responded in the following ways to the following five questions:

- 505: Do you agree or disagree: You change the materials every 4-8 hours, or whenever needed (for example, when they are very full) *(stating agree somewhat or strongly agree)*
- 506: During your last menstrual period, how often did you wash your hands BEFORE changing your menstrual materials? *(stating washed every time)*

- 507: During your last menstrual period, how often did you wash your hands AFTER changing your menstrual materials? *(stating washed every time)*
- 508: How frequently did you wash your genitals during your last menstrual period? *(stating washed genitals at least twice a day)*
- 509: When you washed your genitals, did you use soap? *(stating used soap every time)*

As shown in Table 16, between baseline and endline there was a 10.6 percentage point increase in proportion of girls who hygienically managed menses observed in the control group, compared to an 18.4 percentage point increase in the intervention group. The difference in change between the study arms over time, however, was not statistically significant (p=0.229), likely due to a combination of both the relatively small sample size (n=372) and the modest increase in change in the intervention group relative to the control group. The interaction models assessing differences by age, school status and marital status were not significant either (p=0.852, p=0.816 and p=0.422, respectively). We did not test for differential impact by sex as this was an indicator that pertained only to females. No differences were seen between adolescents in the intervention group who received peer education and those who did not.

Table 16 | Output Indicator 1.2.4: Proportion of girls who hygienically manage menses

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	190	37.8%	48.4%	10.6%	OR=1.49	(0.78, 2.83)	p = 0.229
Intervention	182	42.6%	61.0%	18.4%			
Interaction Terms							
sex (M, F) * study arm	This indicator pertains only to girls, and as such we did not test for differential impact by sex.						
age (<15, >=15) * study arm	372				OR=1.10	(0.42, 2.90)	p = 0.852
school status (OOS, IS) * study arm	372				OR=1.26	(0.18, 8.61)	p = 0.816
marital status (single, married) * study arm	372				OR=0.54	(0.12, 2.46)	p = 0.422

4. HIV, STI, & PREGNANCY

The ATWA intervention aims to increase adolescents' knowledge of STI risk, prevention and treatment, as well as knowledge of HIV prevention.

Outcome Indicator 1.7: STI risk, prevention and treatment knowledge

This outcome was evaluated using a composite indicator which measured the proportion of adolescents who responded correctly to the following four questions on STI prevention and treatment:

- 602: True or false: A boy/girl can get an STI or HIV the first time that he/she has unprotected sexual intercourse.
- 606. True or false: Using a condom can protect against STIs/HIV
- 607: True or false: For both men and women, signs of a sexually transmitted infection include redness, burning, or sores on the genitals
- 609: True or false: People can reduce their risk of contracting STIs and the HIV virus by having one sexual partner.

All adolescents in each of the three countries were asked the above-mentioned questions, with the exception of primary students in Mali who were only asked question 607 (as the other questions were deemed too sensitive). As shown in Table 17, there was a 1.6 percentage point increase among adolescents in the control group and a 16.6 percentage point increase among adolescents in the intervention group reporting correct knowledge about STI risk, prevention, and treatment between baseline and endline. This difference between study arms over time was statistically significant. Thus, participation in the ATWA intervention is associated with adolescents being 2.6 times more likely to report correct knowledge about STI risk, prevention, and treatment (OR=2.63, p<0.001). The interaction models assessing differences by sex, age, school status and marital status were not significant (p=0.827, p=0.297, p=0.755 and p=0.187, respectively). No differences were seen between adolescents in the intervention group who received peer education and those who did not.

Table 17 | Outcome Indicator 1.7: Proportion of adolescents with correct knowledge about STI risk and prevention and treatment

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	767	55.5%	57.1%	1.6%	OR=2.63	(1.86, 3.71)	**p < 0.001**
Intervention	736	53.9%	70.5%	16.6%			
Interaction Terms							
sex (M, F) * study arm	1503				OR=0.96	(0.68, 1.36)	p = 0.827
age (<15, >=15) * study arm	1503				OR=1.49	(0.70, 3.15)	p = 0.297
school status (OOS, IS) * study arm	1503				OR=1.42	(0.16, 13.05)	p = 0.755

marital status (single, married) * study arm	1503				OR=0.39	(0.10, 1.58)	p = 0.187

Outcome Indicator 1.8: HIV prevention knowledge

This outcome was evaluated using a composite indicator which measured the proportion of adolescents[9] who responded correctly to the following six questions on HIV prevention:

- 602: True or false: A boy/girl can get an STI or HIV the first time that he/she has unprotected sexual intercourse.
- 606. True or false: Using a condom can protect against STIs/HIV.
- 608: True or false: People can get HIV from mosquito bites.
- 609: True or false: People can reduce their risk of contracting STIs and the HIV virus by having one sexual partner.
- 610: True or false: HIV is transmitted by sharing food.
- 612: True or false: A person can take a tablet every day to protect against HIV.

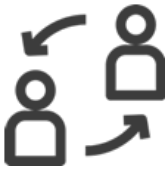
Secondary school adolescents in Mali were asked all of the above-mentioned questions, whereas the questions were deemed too sensitive to ask of Malian adolescents ages 10-14 years and they were therefore not asked any of these questions. As indicated in Table 18, there was a 9.8 percentage point increase among adolescents in the control group and a 25.5 percentage point increase among adolescents in the intervention group reporting correct knowledge about HIV prevention between baseline and endline. This difference was statistically significant. Thus, participation in the ATWA intervention is associated with adolescents being 2.7 times more likely to report correct knowledge about HIV prevention (OR=2.66, p<0.001). The interaction models assessing differences by sex, age, school status and marital status were not significant (p=0.940, p=0.826, p=0.686 and p=0.777, respectively).

Table 18 | Outcome Indicator 1.8: Proportion of adolescents with comprehensive knowledge of HIV prevention

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	767	40.3%	50.1%	9.8%	OR=2.66	(1.90, 3.74)	**p < 0.001**
Intervention	737	42.5%	68.0%	25.5%			
Interaction Terms							
sex (M, F) * study arm	1504				OR=0.99	(0.70, 1.38)	p = 0.940
age (<15, >=15) * study arm	1504				OR=1.08	(0.53, 2.20)	p = 0.826
school status (OOS, IS) * study arm	1504				OR=0.67	(0.09, 4.78)	p = 0.686

[9] Note: In-school Malian adolescents ages 10-14 years were not asked any of these questions due to curricula requirements in Mali. As such, this indicator does not represent this sub-population of the sample.

marital status (single, married) * study arm	1504				OR=1.21	(0.32, 4.56)	p = 0.777



We also found statistically significant differences between adolescents in the intervention group who received PE and those who did not; 54.8% of adolescents in the intervention group who did *not* receive PE responded correctly to the six questions on HIV prevention as compared to 74.8% of adolescents who *did* receive PE (p=0.029).

Impact Indicator 1: Decrease in adolescent birth rate

The overall planned ATWA impact is improved sexual and reproductive health and rights among adolescents. Impact indicator 1 is the decrease in adolescent birth rate among female respondents ages 15-19 years. We use adolescent parity among female respondents as a proxy for this indicator. However, results on adolescent birth rate should be interpreted with caution due to the small number of births recorded. Among girls ages 15-19, at the time of the baseline survey, 11 out of 280 (3.92%) girls reported that they have given birth to at least one child; at the time of the endline survey, 8 out of 263 (3.04%) girls reported having given birth to at least one child. As shown in Table 19, there was a 0.002 percentage point increase among adolescents in the control group and a 0.027 percentage point decrease among adolescents in the intervention group reporting births; however, this difference was not statistically significant. The interaction model exploring differences by marital status did not converge, and there was not a statically significant difference by school status (p=0.827). No differences were seen between adolescents in the intervention group who received peer education and those who did not.

Table 19 | Impact Indicator 1: Decrease in adolescent birth rate (girls ages 15-19 only)

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	132	0.043	0.045	0.002	-0.01	(-0.04, 0.02)	p = 0.464
Intervention	131	0.050	0.023	-0.027			
Interaction Terms							
sex (M, F) * study arm	This indicator pertains only to girls, and as such we did not test for differential impact by sex.						
age (<15, >=15) * study arm	This indicator pertains only to adolescent girls 15-19 years, and as such we did not test for differential impact by age.						
school status (OOS, IS) * study arm	263				0.02	(-0.13, 0.16)	p = 0.827
marital status (single, married) * study arm	NA				NA	NA	NA

Impact Indicator 2: Decrease in adolescent pregnancy

Impact indicator 2 is the decrease in the proportion of female and male adolescents who have ever been pregnant or caused a pregnancy. As shown in Table 20, there was a 0.7 percentage point increase among adolescents in the control group and 1.0 percentage point decrease among adolescents in the intervention group reporting ever having been pregnant or caused a pregnancy between baseline and endline; however, this difference was not statistically significant. The interaction models exploring differences by sex, school status and marital status were also not statically significant (p=0.925, p=0.479, and p=0.958, respectively). No differences were seen between adolescents in the intervention group who received peer education and those who did not.

Table 20 | Impact Indicator 2: Decrease in proportion of adolescents who have ever been pregnant or caused a pregnancy

(Among all married males and females – and unmarried males/females ages 14 or older)

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	394	1.8%	2.5%	0.7%	OR=0.35	(0.05, 2.25)	p = 0.268
Intervention	343	3.0%	2.0%	-1.0%			
Interaction Terms							
sex (M, F) * study arm	737				OR=0.88	(0.07, 11.58)	p = 0.925
age (<15, >=15) * study arm	This indicator pertains only to adolescents ages 14 years and older, and as such we did not test for differential impact by age.						
school status (OOS, IS) * study arm	737				OR=0.37	(0.02, 5.88)	p = 0.479
marital status (single, married) * study arm	737				OR=1.11	(0.02, 61.51)	p = 0.958

5. CONTRACEPTION & SEXUAL ACTIVITY

A large focus of the ATWA evaluation indicators centers on adolescent behaviors and knowledge surrounding contraception and sexual activity. This section provides findings on seven indicators, two of which are impact indicators.

Outcome Indicator 1.1: Intent to use modern contraception

Outcome Indicator 1.1 is the proportion of adolescents with the intent to use modern contraception in the future. In Mali, this question was asked only among secondary students, as this question was deemed too sensitive for primary students. Similarly, only older Nigerien

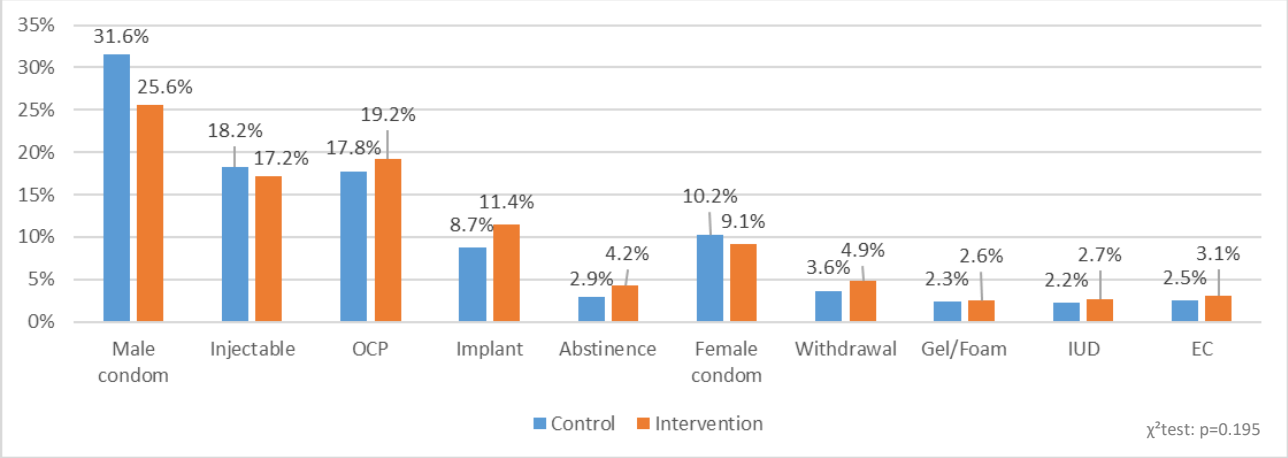
adolescents ages 15-19 years were asked this question, as this topic was deemed too sensitive to ask of the younger adolescents and was not covered in the curriculum. As shown in Table 21, a 12.6 percentage point increase in intent to use modern contraception was observed in the control group, compared to a 19.3 percentage point increase observed in the intervention group. The difference in change between the study arms over time reached statistical significance, indicating that participation in the ATWA intervention was associated with adolescents being 1.7 times more likely to intend to use modern contraception (OR=1.68, p=0.041). The models testing for interaction by sex, age, school status, and marital status were not significant (p=0.839, p=0.870, p=0.892, and p=0.546, respectively). No differences were seen between adolescents in the intervention group who received peer education and those who did not on this measure.

Table 21 | Outcome Indicator 1.1: Intent to use modern contraception

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	366	45.3%	57.9%	12.6%	OR=1.68	(1.02, 2.76)	**p = 0.041**
Intervention	307	51.4%	70.7%	19.3%			
Interaction Terms							
sex (M, F) * study arm	673				OR=0.95	(0.55, 1.62)	p = 0.839
age (<15, >=15) * study arm	673				OR=1.09	(0.38, 3.15)	p = 0.870
school status (OOS, IS) * study arm	673				OR=0.86	(0.10, 7.32)	p = 0.892
marital status (single, married) * study arm	673				OR=1.94	(0.23, 16.65)	p = 0.546

Figure 1 (below) shows the types of methods planned for future use by study arm. As shown, the differences between the intervention and control groups were not statistically significant (p=0.195, under omnibus chi-square test, testing for differences across *all* categories rather than individual methods).

Figure 1 | Outcome Indicator 1.1: Intent to use modern contraception (by study arm)



Outcome Indicator 1.2: Condom use at last sex

Outcome Indicator 1.2 is the proportion of sexually active adolescents reporting using a condom at last sex. Questions related to this indicator were asked in Burkina Faso among all adolescents; however, these questions were asked in Mali only among secondary students, as these questions were considered too sensitive for primary students. Similarly, these questions were only asked of Nigerien adolescents ages 15-19. Among the 508 adolescents ages 15-19 included in the survey sample at endline, 12.4% (n=63) stated they had been sexually active in the past 12 months. As shown in Table 22, there was a 1.4 percentage point decrease observed change reporting condom use at last sex within the control group and a 33.4 percentage point increase was observed in the intervention group. The difference in change between the study arms over time did not reach statistical significance (p=0.085) and was likely due to the very small sample size (n=73). The interaction models exploring differences by sex, age, and marital status did not reach significance either (p=0.734, p=0.758, and p=0.991, respectively). The interaction model on school status did not converge. In addition, the peer education analyses were not possible as none of the adolescents in secondary schools in Mali that did not receive peer education happened to be sexually active (and therefore no one was eligible to be asked this question).

Table 22 | Outcome Indicator 1.2: Condom use at last sex

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	35	50.0%	48.6%	-1.4%	OR=6.92	(0.77, 62.33)	p = 0.085
Intervention	38	42.9%	76.3%	33.4%			
Interaction Terms							
sex (M, F) * study arm	73				OR=0.66	(0.06, 7.23)	p = 0.734

age (<15, >=15) * study arm	73				OR=2.11	(0.02, 243.29)	p = 0.758
school status (OOS, IS) * study arm	NA				NA	NA	NA
marital status (single, married) * study arm	73				OR=1.02	(0.03, 31.03)	p = 0.991

Outcome Indicator 1.3: Consistent condom use

Outcome Indicator 1.3 is the proportion of sexually active, unmarried adolescents who reported using a condom consistently in the last six months. Questions related to Indicator 1.3 were asked in Burkina Faso among all sexually active and unmarried adolescents; however, these questions were not asked of primary students in Mali as they were considered too sensitive for this age group; similarly, these questions were asked only of older Nigerien adolescents ages 15-19 years, as they were also considered too sensitive to ask younger adolescents. As shown in Table 23, there was a 14.6 percentage point decrease in consistent condom use within the control group compared to a 14.4 percentage point increase observed in the intervention group. However, due to the small sample size (n=48), these results were not statistically significant (p=0.115). Interaction models exploring differences between sex and age were also not statistically significant (p=0.175 and p=0.494, respectively). The interaction model by school status did not converge. In addition, the peer education analyses were not possible as none of the adolescents in the non-peer education group were asked this question in the survey.

Table 23 | Outcome Indicator 1.3: Consistent condom use

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	24	68.8%	54.2%	-14.6%	OR=5.74	(0.66, 50.20)	p = 0.115
Intervention	24	73.1%	87.5%	14.4%			
Interaction Terms							
sex (M, F) * study arm	48				OR=0.23	(0.03, 1.93)	p = 0.175
age (<15, >=15) * study arm	48				OR=2.65	(0.16, 43.08)	p = 0.494
school status (OOS, IS) * study arm	NA				NA	NA	NA
marital status (single, married) * study arm	This indicator pertains only to unmarried adolescents, and as such we did not test for differential impact by marital status.						

Outcome Indicator 1.5: Known modern contraceptive methods

Outcome Indicator 1.5 is the average number of modern contraceptive methods known to female adolescents ages 10-14 (Indicator 1.5.A) and 15-19 (Indicator 1.5.B). The ten possible modern methods assessed in the outcome evaluation survey included: contraceptive implant, IUD, injectables, birth control pills, emergency contraception, male and female condoms, diaphragm,

foam/jelly, and the standard days method. Questions related to known contraceptive methods were asked among secondary students in Mali; however, younger, in-school Malian adolescents were not assessed on this indicator, as this topic was not covered in the curriculum. Similarly, these questions were asked of secondary students and OOS adolescents in Niger, but younger, in-school Nigerien adolescents were not assessed on this indicator, as this topic was not covered in the curriculum. In contrast, all of these questions related to known contraceptive methods were asked of both primary and secondary students in Burkina Faso. As such, the adolescents reflected in the results for Outcome Indicator 1.5.A. reflect a sub-sample of 265 girls ages 10-14 years: 243 Burkinabe adolescents (all of whom were in school), 6 students (ages 13 and 14) in Mali, and 16 secondary students and female out of school Nigerien adolescents ages 10-14 years.

As shown in Table 24, for outcome indicator 1.5.A, there was a 3.0-point increase in average number of modern contraceptives known to girls 10-14 years old in the control group, compared to a 5.3-point increase observed among the intervention group. This difference in change between the study arms over time reached statistical significance, suggesting that participation in the intervention led to improvements in known modern contraceptive methods among girls ages 10-14 years (OR=2.4, p<0.001). The interaction model for school status was not statistically significant (p=0.611). In addition, the interaction model for marital status did not converge, and no interaction model was run on sex or age as this pertained only to girls aged 10-14. No differences were seen between adolescents in the intervention group who received peer education and those who did not.

Table 24 | Outcome Indicator 1.5.A: Average number of modern contraceptive methods known among females ages 10-14 years

1.5.A: Average number of modern contraceptives known among women 10-14 years old							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	142	3.021	6.028	3.007	2.37	(1.66, 3.07)	**p < 0.001**
Intervention	123	3.656	8.919	5.263			
Interaction Terms							
sex (M, F) * study arm	This indicator pertains only to females, and as such we did not test for differential impact by sex.						
age (<15, >=15) * study arm	This indicator pertains only to adolescents 10-14 years old, and as such we did not test for differential impact by age.						
school status (OOS, IS) * study arm	265				0.99	(-2.80, 4.78)	p = 0.611
marital status (single, married) * study arm	NA				NA	NA	NA

Table 25 shows that the average number of modern contraceptive methods known among female adolescents ages 15-19 years increased by 1.7 known methods in the control group compared to 2.9 known methods in the intervention group. The difference in change between the study arms over time reached statistical significance, indicating that participation in the ATWA intervention was associated with older female adolescents being more likely to report knowing more modern contraceptive methods (coefficient=1.26, p<0.001). We did not test for differential impact by sex and age as this was only asked to female participants 15-19 years old. The interaction models assessing differential intervention effects by school status and marital status failed to reach statistical significance (p=0.835 and p=0.566, respectively).

Table 25 | Outcome Indicator 1.5.B: Average number of modern contraceptive methods known among females ages 15-19 years

1.5.B: Average number of modern contraceptives known among women 15-19 years old							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	127	5.109	6.819	1.710	1.26	(0.61, 1.90)	**p < 0.001**
Intervention	127	5.157	8.102	2.945			
Interaction Terms							
sex (M, F) * study arm	This indicator pertains only to girls, and as such we did not test for differential impact by sex.						
age (<15, >=15) * study arm	This indicator pertains only to 15-19-year-olds, and as such we did not test for differential impact by age.						
school status (OOS, IS) * study arm	254				-0.22	(-2.24, 1.81)	p = 0.835
marital status (single, married) * study arm	254				0.4	(-0.95, 1.74)	p = 0.566

Impact Indicator 3: Need for family planning satisfied with modern contraception

Impact indicator 3A is the proportion of sexually active female adolescents ages 15-19 years *currently married or in union* who have their need for family planning satisfied with modern contraceptive methods. Questions related to Indicator 3A were asked among married secondary students (N=17). As shown in Table 26, all models failed to converge, due to none of the adolescents in the control group reporting contraceptive use at baseline. Even if this had not been the case, the very small sample size would have likely prohibited assessing intervention effects. In addition, analyses to assess peer education (PE) effects were not possible as none of the adolescents in the non-PE group were asked this question.

Table 26 | Impact Indicator 3A: Need for family planning satisfied with modern contraception (among sexually active married females)

3A: Increase in need for family planning satisfied with modern contraception among adolescents currently married or in union							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	9	0.0%	22.2%	22.2%	NA	NA	NA
Intervention	8	18.8%	25.0%	6.2%			
Interaction Terms							
sex (M, F) * study arm	This indicator pertains only to girls, and as such we did not test for differential impact by sex.						
age (<15, >=15) * study arm	NA				NA	NA	NA
school status (OOS, IS) * study arm	NA				NA	NA	NA
marital status (single, married) * study arm	*This indicator pertains only to married females, and as such we did not test for differential impact by marital status.*						

Impact indicator 3B is the proportion of sexually active female adolescents (both unmarried and married) ages 15-19 years who have their need for family planning satisfied with modern contraceptive methods. The sample of individuals who met these criteria was very small (n=24). As shown in Table 27, there was a 2.9 percentage point increase in sexually active females aged 15-19 reporting that their need for family planning was satisfied with modern contraception, compared to a 6.5 percentage point decrease observed in the intervention group. The model assessing difference in change between the study arms was not statistically significant (OR=0.20, p=0.447). The models assessing interaction by school status and marital status also failed to reach statistical significance (p=0.934 and p=0.867, respectively). No interaction models were run on sex or age as this was only asked of female adolescents aged 15-19. Analyses to assess peer education (PE) effects were not possible as none of the adolescents in the non-PE group were asked this question.

Table 27 | Impact Indicator 3B: Need for family planning satisfied with modern contraception (among both unmarried and married sexually active females, aged 15-19)

3B: Increase in need for family planning satisfied with modern contraception among sexually active female adolescents ages 15-19 years							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	14	47.1%	50.0%	2.9%	OR=0.20	(0.00, 12.36)	p = 0.447
Intervention	10	56.5%	50.0%	-6.5%			
Interaction Terms							
sex (M, F) * study arm	This indicator pertains only to girls, and as such we did not test for differential impact by sex.						
age (<15, >=15) * study arm	This indicator pertains only to 15-19-year-olds, and as such we did not test for differential impact by age.						
school status (OOS, IS) * study arm	24				OR=0.81	(0.01, 109.42)	p = 0.934

marital status (single, married) * study arm	24				OR=1.31	(0.05, 31.76)	p = 0.867

Impact Indicator 4: Adolescent modern contraceptive prevalence rate

Impact indicator 4 is the proportion of sexually active adolescents (ages 15-19) who are currently using (or whose partner is using) a modern contraceptive method. Questions used to assess Indicator 4 were asked of adolescents ages 15-19 in Mali and Burkina Faso among secondary students; in Niger, these questions were asked of adolescents ages 15-19 (both OOS and secondary students). As shown in Table 28, a 4.2 percentage point decrease was observed in modern contraceptive prevalence rate within the control group, however, there was a 22.0 percentage point increase observed in the intervention group. The difference observed in change between the study arms over time did not reach statistical significance (OR=3.01, p=0.349), likely due to the small sample size (n=60). The interaction terms for sex, school status, and marital status did not reach statistical significance either (p=0.880, p=0.779, and p=0.896, respectively). Differential impact by age was not assessed because this indicator pertains to sexually active adolescents aged 15-19. Analyses to assess peer education (PE) effects were not possible as none of the adolescents in the non-PE group were asked this question.

Table 28 | Impact Indicator 4: Increase in adolescent modern contraceptive prevalence rate

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	28	54.2%	50.0%	-4.2%	OR=3.01	(0.30, 30.14)	p = 0.349
Intervention	32	56.1%	78.1%	22.0%			
Interaction Terms							
sex (M, F) * study arm	60				OR=0.83	(0.07, 9.76)	p = 0.880
age (<15, >=15) * study arm	This indicator pertains only to adolescents aged 15-19, and as such we did not test for differential impact by age.						
school status (OOS, IS) * study arm	60				OR=1.68	(0.04, 63.17)	p = 0.779
marital status (single, married) * study arm	60				OR=0.83	(0.05, 14.35)	p = 0.896

6. ACCESS TO HEALTH SERVICES

Alongside the provision of life skills education, the ATWA program seeks to increase access to quality adolescent-responsive SRH services.

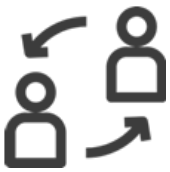
Outcome Indicator 1.9: Knowledge of where to seek SRH services

Outcome Indicator 1.9 is the proportion of adolescents with knowledge of where to seek SRH services, assessed via the proportion of adolescents who stated they knew where to go to get tested for HIV, for STI treatment, and where to get contraception (birth control) and condoms. Questions asking adolescents if they knew where to get condoms, where to get STI treatment, and where to get tested for HIV were posed to all adolescents in each of the three countries. The question asking adolescents if they knew where to get contraception was asked only of girls ages 15-19 years, given that it was deemed too sensitive to ask of younger girls.

As shown in Table 29, there was a 7.8 percentage point increase among adolescents in the control group and 24.2 percentage point increase in the intervention group reporting knowledge of where to seek SRH services between baseline and endline. This difference was statistically significant, indicating that participation in the ATWA intervention was associated with adolescents being 2.4 times more likely to know where to seek SRH services (OR=2.44, p<0.001). We saw no statistically significant differences in intervention effect by sex, age, school status, and marital status (p=0.646, p=0.784, p=0.625, and p=0.054, respectively).

Table 29 | Outcome Indicator 1.9: Knowledge of where to seek SRH services

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	1010	26.7%	34.5%	7.8%	OR=2.44	(1.74, 3.43)	**p < 0.001**
Intervention	987	37.2%	61.4%	24.2%			
Interaction Terms							
sex (M, F) * study arm	1997				OR=1.08	(0.77, 1.52)	p = 0.646
age (<15, >=15) * study arm	1997				OR=1.13	(0.48, 2.66)	p = 0.784
school status (OOS, IS) * study arm	1997				OR=2.18	(0.10, 49.91)	p = 0.625
marital status (single, married) * study arm	1997				OR=4.16	(0.98, 17.67)	p = 0.054



We found statistically significant differences on knowledge of where to seek SRH services between adolescents in the intervention group who received peer education (PE) and those who did not. Supplemental analyses with the PE data indicated that 47.9% of adolescents in the intervention group who did *not* receive PE reported knowledge of where to seek SRH services as compared to 69.0% of adolescents who *did* receive PE ($\chi 2$ p<0.001).

7. COMMUNITY SUPPORT

Community support for life skills education (LSE) and sexual and reproductive health (SRH) services for adolescents is essential for creating an enabling environment for adolescents to engage in ATWA programming. The ATWA M&E Framework (Appendix D) sought to assess the proportion of community leaders' support for provision of LSE/SRHR information and SRH services (Output 1.4). Given that a direct survey amongst adult community leaders was deemed not feasible by Save the Children (largely due to budgetary restrictions), these indicators were instead assessed in the Year 2 evaluation in each of the three countries via adolescent report of perceived community support for LSE and SRH services.

As shown in the final Year 2 survey tool (Appendix E), survey respondents were asked to respond to a series of questions on these topics, with distinction made between: 1) the type of community leader (i.e., religious, school, and other community leaders); 2) the type of support for adolescents (i.e., puberty/LSE information; information about contraception; and adolescents' access to SRH services); and 3) the age group of children receiving the information/services (i.e., those in upper primary school versus those in secondary school). Note that none of the out-of-school adolescents were asked their perceptions of school leaders' support for these types of LSE/SRHR information and SRH services.

The survey questions posed to adolescents are summarized below:

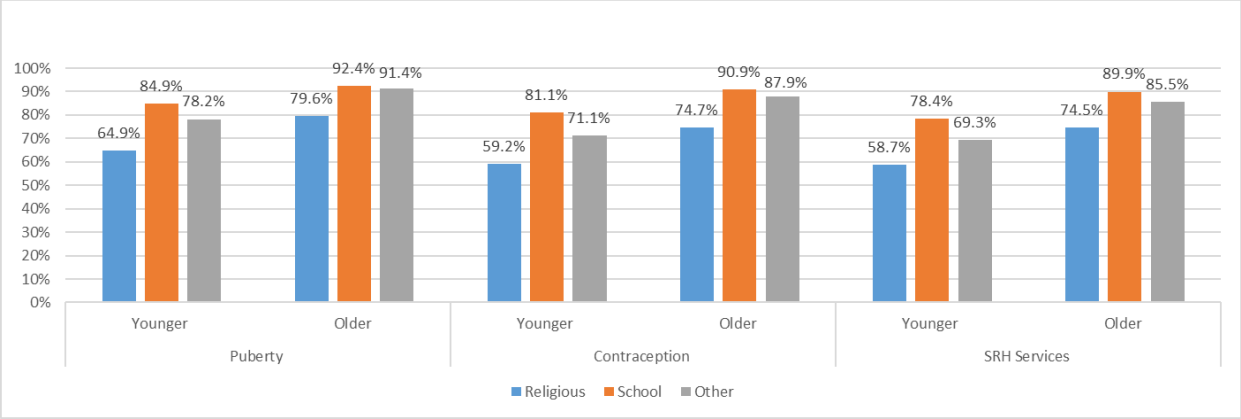
- How supportive do you think [religious/school/other community] leaders are in general about adolescents in [upper primary/secondary] school learning about puberty/life skills education?
- When you think about [religious/school/other community] leaders in your community, how supportive do you think they are in general about adolescents in [upper primary/secondary] school learning about reproductive health and contraception to prevent early pregnancy?
- When you think about [religious/school/other community] leaders in your community, how supportive do you think they are in general about adolescents in [upper primary/secondary] school accessing sexual and reproductive health services?

Response options to these items were on a 5-point Likert scale (5=extremely supportive, 4=somewhat supportive, 3=neutral (neither supportive nor unsupportive), 2=somewhat unsupportive, 1=not supportive at all). To align these 5-point response options to the binary

indicator in the M&E Framework, we merged the five categories such that adolescent responses of 'extremely supportive' and 'somewhat supportive' were coded as "supportive," whereas responses of 'neutral,' 'unsupportive,' or 'not supportive at all' were coded as "unsupportive." The sections below detail perceptions of supportiveness for the three types of LSE/SRHR information and SRH services by type of community leader and the age group of adolescents receiving or accessing these types of information/services (i.e., those in primary versus secondary school).

Overall findings across these categories are summarized in Figure 2. As shown, adolescents perceived relatively high levels of support amongst their community members for provision of SRHR information and services to adolescents. There was however, on average, higher perceived support for older than younger adolescents in receiving SRHR information and services. When findings are explored by type of community leader, adolescents perceived religious leaders to be the least supportive of LSE/SRHR among all community leaders (as compared to school leaders and other community leaders such as civic or local cultural leaders). Finally, there is slightly more perceived support for adolescents learning about puberty than contraception or accessing services.

Figure 2 | Community support for adolescents learning about LSE/SRHR and accessing SRH services (by age group and type of leader)



Output Indicator 1.4.1: Proportion of adolescents who feel religious community leaders support the provision of LSE/SRHR information and SRH services to adolescents ages 10-14 and 15-19 years

Output Indicator 1.4.1 centers on religious leaders' support of adolescents receiving LSE/SRHR information and SRH services. As shown in the subsequent sections, support for LSE/SHRH

information and SRH services was assessed via three topics: a) learning about puberty and life skills education; b) learning about contraception; and c) accessing sexual and reproductive health services.

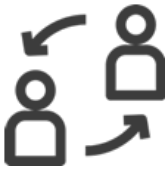
Output Indicator 1.4.1.a examines religious leaders' support for adolescents learning about puberty. As shown in Table 30, there was a 1.8 percentage point increase among adolescents in the control group and a 11.1 percentage point increase among adolescents in the intervention group reporting adolescents who felt religious community leaders support younger adolescents learning about puberty between baseline and endline. Thus, participation in the ATWA intervention was associated with adolescents being 1.9 times more likely to feel religious community leaders support younger adolescents learning about puberty (OR=1.90, p<0.001). This difference between study arms over time was statistically significant. However, interaction terms by sex, age, school status, and marital status were not statistically significant (p=0.131, p=0.590, p=0.657, and p=0.421, respectively).

Yet, when asked about religious community leaders support for older adolescents learning about puberty, there was a 4.3 percentage point increase among adolescents in the control group and a 4.4 percentage point increase among adolescents in the intervention group between baseline and endline. This difference between study arm over time was not statistically significant (OR=1.11, p=0.540). The interaction terms by sex, age, school status, and marital status were also not statistically significant (p=0.760, p=0.993, p=0.423, and p=0.361, respectively).

Table 30 | Outcome Indicator 1.4.1: Adolescents who feel religious community leaders support adolescent girls and boys learning about puberty

1.4.1.a Adolescents who feel religious community leaders support adolescent girls and boys ages 10-14 learning about puberty							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	977	55.8%	57.6%	1.8%	OR=1.90	(1.40, 2.59)	**p < 0.001**
Intervention	968	61.2%	72.3%	11.1%			
Interaction Terms							
sex (M, F) * study arm	1945				OR=0.79	(0.57, 1.07)	p = 0.131
age (<15, >=15) * study arm	1945				OR=0.82	(0.39, 1.71)	p = 0.590
school status (OOS, IS) * study arm	1945				OR=0.59	(0.06, 5.98)	p = 0.657
marital status (single, married) * study arm	1945				OR=1.77	(0.44, 7.17)	p = 0.421
1.4.1.a Adolescents who feel religious community leaders support adolescent girls and boys ages 15-19 learning about puberty							
Main Effects							

	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	960	71.3%	75.6%	4.3%	OR=1.11	(0.79, 1.55)	p = 0.540
Intervention	954	79.1%	83.5%	4.4%			
Interaction Terms							
sex (M, F) * study arm	1914				OR=0.95	(0.68, 1.33)	p = 0.760
age (<15, >=15) * study arm	1914				OR=1.00	(0.50, 1.98)	p = 0.993
school status (OOS, IS) * study arm	1914				OR=2.03	(0.36, 11.53)	p = 0.423
marital status (single, married) * study arm	1914				OR=0.47	(0.09, 2.40)	p = 0.361



Statistically significant differences in perceived levels of support from religious leaders were only observed for older adolescents (ages 15-19) learning about puberty (and not for the younger adolescents (ages 10-14)). A lower proportion of adolescents in the intervention group who did *not* receive PE perceived support from religious leaders for adolescents ages 15-19 years learning about puberty as compared to adolescents who *did* receive PE: 74.9% with no PE versus 86.5% with PE ($\chi 2$ p=0.003).

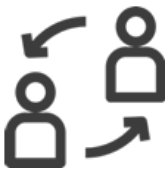
Output Indicator 1.4.1.b is the proportion of adolescents who feel religious community leaders support adolescents learning about contraception. As shown in Table 31, there was a 0.4 percentage point increase among adolescents in the control group and a 10.6 percentage point increase among adolescents in the intervention group reporting adolescents who felt religious community leaders support younger adolescents learning about contraception between baseline and endline, and this difference was statistically significant. Thus, participation in the ATWA intervention was associated with adolescents being 2.0 times more likely to feel religious community leaders support younger adolescents learning about puberty (OR=2.02, p<0.001). Interaction terms by sex, age, school status, and marital status were not statistically significant (p=0.356, p=0.200, p=0.573, and p=0.969, respectively).

When asked about religious community leaders' support for older adolescents learning about contraception (Outcome Indicator 1.4.1.b), there was a 1.4 percentage point increase among adolescents in the control group and a 6.0 percentage point increase among adolescents in the intervention group reporting adolescents who felt religious community leaders support older adolescents learning about contraception between baseline and endline. This difference between study arms from baseline to endline was statistically significant. Thus, participation in the ATWA intervention was associated with adolescents being 1.4 times more likely to feel religious community leaders support older adolescents learning about puberty (OR=1.43, p=0.026).

Interaction terms by sex, age, school status, and marital status were not statistically significant (p=0.411, p=0.499, p=0.475, and p=0.323, respectively).

Table 31 | Outcome Indicator 1.4.1: Adolescents who feel religious community leaders support adolescent girls and boys learning about contraception

1.4.1.a Adolescents who feel religious community leaders support adolescent girls and boys ages 10-14 learning about contraception							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	979	50.5%	50.9%	0.4%	OR=2.02	(1.47, 2.78)	**p < 0.001**
Intervention	968	57.1%	67.7%	10.6%			
Interaction Terms							
sex (M, F) * study arm	1947				OR=0.86	(0.63, 1.18)	p = 0.356
age (<15, >=15) * study arm	1947				OR=0.59	(0.27, 1.32)	p = 0.200
school status (OOS, IS) * study arm	1947				OR=0.47	(0.03, 6.45)	p = 0.573
marital status (single, married) * study arm	1947				OR=1.03	(0.27, 3.94)	p = 0.969
1.4.1.b Adolescents who feel religious community leaders support adolescent girls and boys ages 15-19 learning about contraception							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	963	67.4%	68.8%	1.4%	OR=1.43	(1.04, 1.96)	**p = 0.026**
Intervention	951	74.5%	80.5%	6.0%			
Interaction Terms							
sex (M, F) * study arm	1914				OR=1.14	(0.83, 1.56)	p = 0.411
age (<15, >=15) * study arm	1914				OR=0.80	(0.41, 1.54)	p = 0.499
school status (OOS, IS) * study arm	1914				OR=1.89	(0.33, 10.87)	p = 0.475
marital status (single, married) * study arm	1914				OR=0.49	(0.12, 2.03)	p = 0.323



Statistically significant differences were seen between those in the intervention group who received PE and those who did not only for older adolescents (ages 15-19) learning about contraception: 73.6% with no PE versus 84.8% who received PE ($\chi 2$ p=0.006).

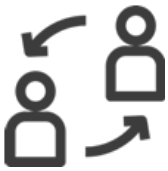
Output Indicator 1.4.1.c is the proportion of adolescents who feel religious community leaders support adolescents accessing sexual and reproductive health services. As indicated in Table 32, there was a 0.5 percentage point increase among adolescents in the control group and a 9.6 percentage point increase among adolescents in the intervention group reporting adolescents who felt religious community leaders support younger adolescents accessing SRH services between baseline and endline. This difference between study arms from baseline to endline was statistically significant. Thus, participation in the ATWA intervention was associated with

adolescents being 1.9 times more likely to feel religious community leaders support younger adolescents accessing SRH services (OR=1.88, p<0.001). However, interaction terms by sex, age, school status, and marital status were not statistically significant (p=0.360, p=0.913, p=0.686, and p=0.484, respectively).

When asked about religious community leaders' support for older adolescents accessing SRH services, there was a 2.3 percentage point increase among adolescents in the control group and a 4.4 percentage point increase among adolescents in the intervention group between baseline and endline. This difference between study arm over time was not statistically significant however (OR=1.22, p=0.211). The interaction terms by sex, age, school status, and marital status were also not statistically significant (p=0.725, p=0.887, p=0.794, and p=0.866, respectively).

Table 32 | Outcome Indicator 1.4.1: Adolescents who feel religious community leaders support adolescent girls and boys accessing sexual and reproductive health services

1.4.1.c Adolescents who feel religious community leaders support adolescent girls and boys ages 10-14 accessing sexual and reproductive health services							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	980	50.9%	51.4%	0.5%	OR=1.88	(1.37, 2.58)	**p < 0.001**
Intervention	971	56.5%	66.1%	9.6%			
Interaction Terms							
sex (M, F) * study arm	1951				OR=0.86	(0.63, 1.18)	p = 0.340
age (<15, >=15) * study arm	1951				OR=0.96	(0.43, 2.13)	p = 0.913
school status (OOS, IS) * study arm	1951				OR=0.58	(0.04, 8.11)	p = 0.686
marital status (single, married) * study arm	1951				OR=1.61	(0.42, 6.17)	p = 0.484
1.4.1.c Adolescents who feel religious community leaders support adolescent girls and boys ages 15-19 accessing sexual and reproductive health services							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	961	67.5%	69.8%	2.3%	OR=1.22	(0.89, 1.68)	p = 0.211
Intervention	946	74.8%	79.2%	4.4%			
Interaction Terms							
sex (M, F) * study arm	1907				OR=1.06	(0.77, 1.45)	p = 0.725
age (<15, >=15) * study arm	1907				OR=0.95	(0.49, 1.86)	p = 0.887
school status (OOS, IS) * study arm	1907				OR=1.27	(0.21, 7.75)	p = 0.794
marital status (single, married) * study arm	1907				OR=0.89	(0.23, 3.42)	p = 0.866



Statistically significant differences were seen between in the intervention group who received PE and those who did not: 72.2% among those who did *not* receive PE versus 83.2% who *did* receive PE perceived that religious leaders support older adolescents accessing SRH services ($\chi 2$ p=0.008).

Output Indicator 1.4.2: Proportion of adolescents who feel school leaders support the provision of LSE/SRHR information and SRH services to adolescents ages 10-14 and 15-19 years

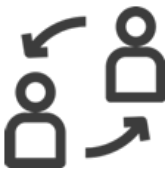
Output Indicator 1.4.2.a is the proportion of adolescents who feel school leaders support adolescents ages 10-14 and 15-19 years learning about puberty. In contrast to religious leaders, adolescents indicated that school leaders in their communities would be overall more supportive of adolescents of both age groups learning about puberty, contraception, and accessing SRH services. As shown in Table 33, there was a 4.9 percentage point increase among adolescents in the control group and a 15.7 percentage point increase among adolescents in the intervention group reporting adolescents who felt school leaders support younger adolescents learning about puberty between baseline and endline. This difference between study arms from baseline to endline was statistically significant. Thus, participation in the ATWA intervention was associated with adolescents being 3.7 times more likely to feel school leaders support younger adolescents learning about puberty (OR=3.69, p<0.001). However, interaction terms by sex, age, and marital status were not statistically significant (p=0.341, p=0.704, and p=0.714, respectively).

An attenuated, but still statistically significant, effect was observed when asked about school leaders' support for older adolescents learning about puberty, there was a 0.3 percentage point decrease among adolescents in the control group and a 3.3 percentage point increase among adolescents in the intervention group between baseline and endline. Thus, participation in the ATWA intervention was associated with adolescents being 1.9 times more likely to feel school leaders support older adolescents learning about puberty (OR=1.94, p=0.015). However, interaction terms by sex and age were not statistically significant (p=0.130 and p=0.728, respectively). Due to the limitations of the data, we were unable to test the differential impact of school status and marital status.

Table 33 | Outcome Indicator 1.4.2: Adolescents who feel school leaders support adolescent girls and boys learning about puberty

1.4.2.a Adolescents who feel school leaders support girls & boys ages 10-14 learning about puberty
Main Effects

	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	930	73.9%	78.8%	4.9%	OR=3.69	(2.44, 5.56)	**p < 0.001**
Intervention	938	75.2%	90.9%	15.7%			
Interaction Terms							
sex (M, F) * study arm	1868				OR=1.20	(0.82, 1.75)	p = 0.341
age (<15, >=15) * study arm	1868				OR=1.21	(0.45, 3.28)	p = 0.704
school status (OOS, IS) * study arm	NA				NA	NA	NA
marital status (single, married) * study arm	1868				OR=2.16	(0.04, 132.83)	p = 0.714
1.4.2.a Adolescents who feel school leaders support girls & boys ages 15-19 learning about puberty							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	921	89.0%	88.7%	-0.3%	OR=1.94	(1.14, 3.31)	**p = 0.015**
Intervention	923	92.8%	96.1%	3.3%			
Interaction Terms							
sex (M, F) * study arm	1844				OR=1.49	(0.89, 2.50)	p = 0.130
age (<15, >=15) * study arm	1844				OR=0.84	(0.31, 2.25)	p = 0.728
school status (OOS, IS) * study arm	NA				NA	NA	NA
marital status (single, married) * study arm	NA				NA	NA	NA



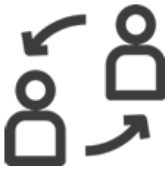
Statistically significant differences in perceived levels of support from school leaders for older adolescents (ages 15-19) learning about puberty. A lower proportion of adolescents in the intervention group who did *not* receive PE perceived support from school leaders for adolescents ages 15-19 years learning about puberty as compared to adolescents who *did* receive PE: 93.8% with no PE versus 97.9% with PE ($\chi 2$ p=0.035).

Output Indicator 1.4.2.b is the proportion of adolescents who feel school leaders support adolescents ages 10-14 and 15-19 years learning about contraception. As shown in Table 34, there was a 7.5 percentage point increase among adolescents in the control group and a 15.1 percentage point increase among adolescents in the intervention group reporting adolescents who felt school leaders support younger adolescents learning about contraception between baseline and endline. This difference between study arms from baseline to endline was statistically significant. Thus, participation in the ATWA intervention was associated with adolescents being 2.5 times more likely to feel school leaders support younger adolescents learning about contraception (OR=2.47, p<0.001). Interaction terms by sex, age, and marital status were not statistically significant (p=0.431, p=0.669, and p=0.922, respectively).

When asked about school leaders' support for older adolescents learning about contraception, there was a 0.3 percentage point increase among adolescents in the control group and a 3.9 percentage point increase among adolescents in the intervention group between baseline and endline. This difference between study arms from baseline to endline was statistically significant. Thus, participation in the ATWA intervention was associated with adolescents being 2.1 times more likely to feel school leaders support older adolescents learning about contraception (OR=2.09, p=0.004). However, interaction terms by sex and age were not statistically significant (p=0.087 and p=0.959, respectively). Due to the limitations of the data, we were unable to test the differential impact of school status and marital status.

Table 34 | Outcome Indicator 1.4.2: Adolescents who feel school leaders support adolescent girls and boys learning about contraception

1.4.2.b Adolescents who feel school leaders support adolescent girls and boys ages 10-14 learning about contraception							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	935	67.5%	75.0%	7.5%	OR=2.47	(1.67, 3.66)	**p < 0.001**
Intervention	937	72.1%	87.2%	15.1%			
Interaction Terms							
sex (M, F) * study arm	1872				OR=1.16	(0.80, 1.68)	p = 0.431
age (<15, >=15) * study arm	1872				OR=1.26	(0.44, 3.62)	p = 0.669
school status (OOS, IS) * study arm	NA				NA	NA	NA
marital status (single, married) * study arm	1872				OR=0.81	(0.01, 59.39)	p = 0.922
1.4.2.b Adolescents who feel school leaders support adolescent girls and boys ages 15-19 learning about contraception							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	915	86.0%	86.3%	0.3%	OR=2.09	(1.27, 3.46)	**p = 0.004**
Intervention	923	91.4%	95.3%	3.9%			
Interaction Terms							
sex (M, F) * study arm	1838				OR=1.54	(0.94, 2.53)	p = 0.087
age (<15, >=15) * study arm	1838				OR=0.97	(0.34, 2.81)	p = 0.959
school status (OOS, IS) * study arm	NA				NA	NA	NA
marital status (single, married) * study arm	NA				NA	NA	NA



Statistically significant differences were seen between in the intervention group who received PE and those who did not for older adolescents (ages 15-19 years) learning about contraception: a lower proportion of those who did *not* receive PE

(92.0%) compared to those who *did* receive PE (98.3%) perceived that school leaders support older adolescents learning about contraception (χ2 p=0.002).

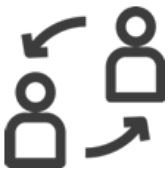
Output Indicator 1.4.2.c is the proportion of adolescents who feel school leaders support adolescents ages 10-14 and 15-19 years accessing sexual and reproductive services. As indicated in Table 35, there was a 4.9 percentage point increase among adolescents in the control group and a 12.4 percentage point increase among adolescents in the intervention group reporting adolescents who felt school leaders support younger adolescents accessing SRH services between baseline and endline. This difference between study arms from baseline to endline was statistically significant. Thus, participation in the ATWA intervention was associated with adolescents being 2.3 times more likely to feel school leaders support younger adolescents accessing SRH services (OR=2.32, p<0.001). Interaction terms by sex, age, and marital status were not statistically significant (p=0.908, p=0.696, and p=0.361, respectively).

When asked about school leaders' support for older adolescents accessing SRH services, there was a 0.2 percentage point increase among adolescents in the control group and a 3.5 percentage point increase among adolescents in the intervention group between baseline and endline. This difference between study arms from baseline to endline was statistically significant. Thus, participation in the ATWA intervention was associated with adolescents being 1.8 times more likely to feel school leaders support older adolescents accessing SRH services (OR=1.76, p=0.022). Interaction terms by sex and age were not statistically significant (p=0.470 and p=0.817, respectively). Due to the limitations of the data, we were unable to test the differential impact of school status and marital status.

Table 35 | Outcome Indicator 1.4.2: Adolescents who feel school leaders support adolescent girls and boys accessing sexual and reproductive health services

1.4.2.c Adolescents who feel school leaders support adolescent girls and boys ages 10-14 accessing sexual and reproductive health services							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	932	67.3%	72.2%	4.9%	OR=2.32	(1.57, 3.43)	**p < 0.001**
Intervention	937	72.1%	84.5%	12.4%			
Interaction Terms							
sex (M, F) * study arm	1869				OR=0.98	(0.67, 1.43)	p = 0.908
age (<15, >=15) * study arm	1869				OR=0.81	(0.28, 2.36)	p = 0.696
school status (OOS, IS) * study arm	NA				NA	NA	NA
marital status (single, married) * study arm	1869				OR=7.85	(0.09, 650.88)	p = 0.361

1.4.2.c Adolescents who feel school leaders support adolescent girls and boys ages 15-19 accessing sexual and reproductive health services							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	915	85.0%	85.2%	0.2%	OR=1.76	(1.08, 2.85)	**p = 0.022**
Intervention	918	90.9%	94.4%	3.5%			
Interaction Terms							
sex (M, F) * study arm	1833				OR=1.20	(0.73, 1.97)	p = 0.470
age (<15, >=15) * study arm	1833				OR=0.88	(0.30, 2.57)	p = 0.817
school status (OOS, IS) * study arm	NA				NA	NA	NA
marital status (single, married) * study arm	NA				NA	NA	NA



Statistically significant differences were seen between those in the intervention group who received PE and those who did not accessing SRH services, however the effects were in the opposite direction as anticipated for the younger adolescents: a *higher* proportion of those who did *not* receive PE (90.2%) compared to those who *did* receive PE (81.5%) perceived that school leaders support very young adolescents (10-14 years) accessing SRH services. The anticipated effects of greater improvements in perceived support were seen for older adolescents: 93.3% of those who did *not* receive PE perceived that school leaders support older adolescents (15-19 years) accessing SRH services as compared to 97.5% those who *did* receive PE.

Output Indicator 1.4.3: Proportion of adolescents who feel other community leaders support the provision of LSE/SRHR information and SRH services to adolescents ages 10-14 and 15-19 years

Output Indicator 1.4.3.a is the proportion of adolescents who feel other community leaders supported adolescents ages 10-14 and 15-19 years learning about puberty. As shown in Table 36, there was a 1.9 percentage point increase among adolescents in the control group and a 13.3 percentage point increase among adolescents in the intervention group reporting adolescents who felt other community leaders (e.g., village and neighborhood chiefs, association/committee members) support younger adolescents learning about puberty between baseline and endline. This difference between study arms from baseline to endline was statistically significant. Thus, participation in the ATWA intervention was associated with adolescents being 2.5 times more likely to feel school leaders support younger adolescents learning about puberty (OR=2.46, p<0.001). However, interaction terms by sex, age, school status, and marital status were not statistically significant (p=0.756, p=0.708, p=0.535, and p=0.345, respectively).

Likewise, when asked about other community leaders' support for older adolescents learning about puberty, there was a 0.1 percentage point increase among adolescents in the control group and a 3.5 percentage point increase among adolescents in the intervention group between baseline and endline. This difference between study arm over time was not statistically significant (OR=1.65, p=0.149). The interaction term by sex, age, and school status were not statistically significant (p=0.084, p=0.875, and p=0.879, respectively). Models assessing differential impacts by marital status failed to converge. No statistically significant differences were seen between those in the intervention group who received peer education and those who did not on levels of perceived support for learning about puberty for either age group.

Table 36 | Outcome Indicator 1.4.3: Adolescents who feel other community leaders support adolescent girls and boys learning about puberty

1.4.3.a Adolescents who feel other community leaders support adolescent girls and boys ages 10-14 learning about puberty							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	397	67.9%	69.8%	1.9%	OR=2.46	(1.44, 4.21)	**p = 0.001**
Intervention	501	71.5%	84.8%	13.3%			
Interaction Terms							
sex (M, F) * study arm	898				OR=1.10	(0.62, 1.95)	p = 0.756
age (<15, >=15) * study arm	898				OR=0.83	(0.30, 2.25)	p = 0.708
school status (OOS, IS) * study arm	898				OR=0.40	(0.02, 7.16)	p = 0.535
marital status (single, married) * study arm	898				OR=2.96	(0.31, 28.01)	p = 0.345
1.4.3.a Adolescents who feel other community leaders support adolescent girls and boys ages 15-19 learning about puberty							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	391	88.6%	88.7%	0.1%	OR=1.65	(0.84, 3.25)	p = 0.149
Intervention	491	90.0%	93.5%	3.5%			
Interaction Terms							
sex (M, F) * study arm	882				OR=1.88	(0.92, 3.83)	p = 0.084
age (<15, >=15) * study arm	882				OR=0.92	(0.34, 2.49)	p = 0.875
school status (OOS, IS) * study arm	882				OR=1.16	(0.17, 7.75)	p = 0.879
marital status (single, married) * study arm	NA				NA	NA	p = NA

Output Indicator 1.4.3.b is the proportion of adolescents who feel other community leaders support adolescents ages 10-14 and 15-19 years learning about contraception. As shown in Table 37, there was a 0.3 percentage point increase among adolescents in the control group and a 14.0

percentage point increase among adolescents in the intervention group reporting adolescents who felt other community leaders support younger adolescents learning about contraception between baseline and endline. This difference between study arms from baseline to endline was statistically significant. Thus, participation in the ATWA intervention was associated with adolescents being 2.8 times more likely to feel school leaders support younger adolescents learning about contraception (OR=2.75, p<0.001). Interaction terms by sex, age, school status, and marital status were not statistically significant (p=0.953, p=0.183, p=0.479, and p=0.265, respectively).

When asked about other community leaders' support for older adolescents learning about contraception, there was a 2.0 percentage point increase among adolescents in the control group and a 3.5 percentage point increase among adolescents in the intervention group between baseline and endline. This difference between study arm over time was not statistically significant (OR=1.29, p=0.392). The interaction term by sex, age, school status, and marital status were not statistically significant (p=0.555, p=0.925, p=0.758, and p=0.730, respectively). No statistically significant differences were seen between those in the intervention group who received peer education and those who did not on levels of perceived support for learning about contraception for either age group.

Table 37 | Outcome Indicator 1.4.3: Adolescents who feel other community leaders support adolescent girls and boys learning about contraception

1.4.3.b Adolescents who feel other community leaders support adolescent girls and boys ages 10-14 learning about contraception							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	398	60.5%	60.8%	0.3%	OR=2.75	(1.61, 4.70)	**p < 0.001**
Intervention	501	65.2%	79.2%	14.0%			
Interaction Terms							
sex (M, F) * study arm	899				OR=1.02	(0.58, 1.78)	p = 0.953
age (<15, >=15) * study arm	899				OR=0.49	(0.17, 1.41)	p = 0.183
school status (OOS, IS) * study arm	899				OR=0.30	(0.01, 8.30)	p = 0.479
marital status (single, married) * study arm	899				OR=3.01	(0.43, 20.87)	p = 0.265
1.4.3.b Adolescents who feel other community leaders support adolescent girls and boys ages 15-19 learning about contraception							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	387	83.0%	85.0%	2.0%	OR=1.29	(0.72, 2.34)	p = 0.392
Intervention	490	86.7%	90.2%	3.5%			
Interaction Terms							

sex (M, F) * study arm	877				OR=1.20	(0.65, 2.23)	p = 0.555
age (<15, >=15) * study arm	877				OR=1.05	(0.41, 2.67)	p = 0.925
school status (OOS, IS) * study arm	877				OR=0.74	(0.11, 5.02)	p = 0.758
marital status (single, married) * study arm	877				OR=0.67	(0.07, 6.50)	p = 0.730

Output Indicator 1.4.3.c is the proportion of adolescents who feel other community leaders support adolescents ages 10-14 and 15-19 years accessing sexual and reproductive health services. As indicated in Table 38, there was a 1.0 percentage point decrease among adolescents in the control group and a 10.9 percentage point increase among adolescents in the intervention group reporting adolescents who felt other community leaders support younger adolescents accessing SRH services between baseline and endline. This difference between study arms from baseline to endline was statistically significant. Thus, participation in the ATWA intervention was associated with adolescents being 2.1 times more likely to feel school leaders support younger adolescents accessing SRH services (OR=2.12, p=0.005). However, interaction terms by sex, age, school status, and marital status were not statistically significant (p=0.893, p=0.822, p=0.584, and p=0.463, respectively).

When asked about other community leaders' support for older adolescents accessing SRH services, there was a 0.6 percentage point decrease among adolescents in the control group and a 1.0 percentage point increase among adolescents in the intervention group between baseline and endline. This difference between study arm over time was not statistically significant (OR=1.15, p=0.645). The interaction term by sex, age, school status, and marital status were not statistically significant (p=0.315, p=0.711, p=0.915, and p=0.468, respectively). No statistically significant differences were seen between those in the intervention group who received peer education and those who did not on levels of perceived support for adolescents accessing SRH services for either age group.

Table 38 | Outcome Indicator 1.4.3: Adolescents who feel other community leaders support adolescent girls and boys accessing sexual and reproductive health services

1.4.3.c Adolescents who feel other community leaders support adolescent girls and boys ages 10-14 accessing sexual and reproductive health services							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	398	61.6%	60.6%	-1.0%	OR=2.12	(1.25, 3.57)	**p = 0.005**
Intervention	500	65.3%	76.2%	10.9%			
Interaction Terms							
sex (M, F) * study arm	898				OR=1.04	(0.60, 1.79)	p = 0.893

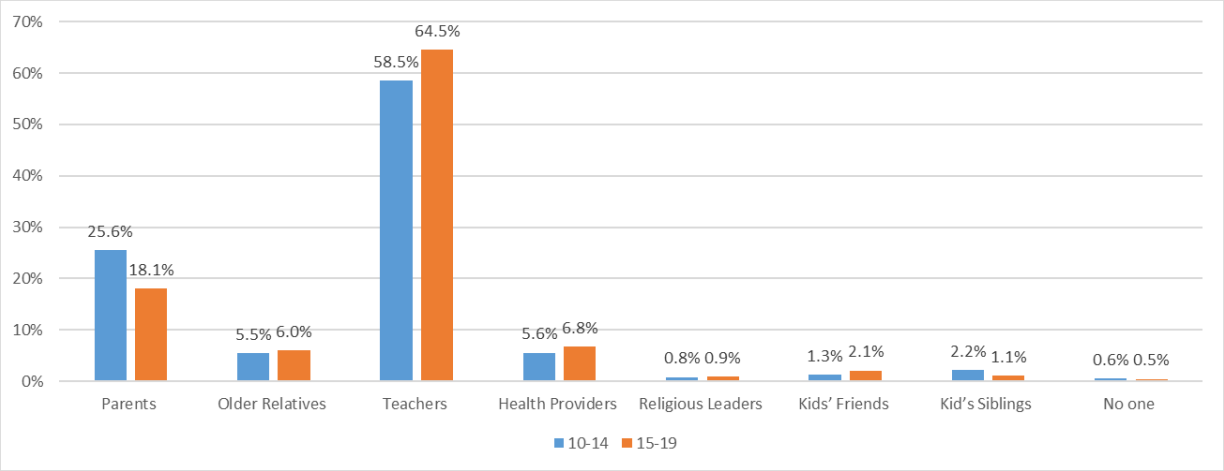
age (<15, >=15) * study arm	898				OR=0.89	(0.31, 2.51)	p = 0.822
school status (OOS, IS) * study arm	898				OR=0.41	(0.02, 10.34)	p = 0.584
marital status (single, married) * study arm	898				OR=2.01	(0.31, 13.08)	p = 0.463
1.4.3.c Adolescents who feel other community leaders support adolescent girls and boys ages 15-19 accessing sexual and reproductive health services							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	388	82.3%	81.7%	-0.6%	OR=1.15	(0.64, 2.08)	p = 0.645
Intervention	488	87.5%	88.5%	1.0%			
Interaction Terms							
sex (M, F) * study arm	876				OR=1.39	(0.73, 2.62)	p = 0.315
age (<15, >=15) * study arm	876				OR=1.21	(0.44, 3.29)	p = 0.711
school status (OOS, IS) * study arm	876				OR=0.89	(0.1, 8.13)	p = 0.915
marital status (single, married) * study arm	876				OR=0.44	(0.05, 4.11)	p = 0.468

Adolescent beliefs about appropriate people to teach them about puberty

In the Year 2 Endline survey, we asked adolescents who they thought were the most appropriate people to teach adolescents of upper primary and secondary school age (10-14 years and 15-19 years, respectively) about puberty and reproductive health. Respondents were asked to select the *most* appropriate, and so were forced to choose only one option.

As shown in the graph below (Figure 3), of all of the options and for both age categories of adolescents (both younger and older adolescents) the majority of our survey respondents felt that ***teachers were best-positioned to teach adolescents about puberty and reproductive health***: 58.5% of respondents felt teachers were the best people to teach younger adolescents and 64.5% of respondents felt this was true for older adolescents. The next most-selected type of person was parents, with 25.6% of respondents choosing parents as most appropriate for teaching younger adolescents and a slightly smaller proportion (18.1%) of all respondents choosing parents as being the most appropriate to teach older adolescents about puberty and reproductive health. The remaining options—older relatives, health providers, religious leaders, kids' friends, and kids' siblings—were selected by less than a fifth of respondents. Notably, only a very small proportion of respondents (0.6% and 0.5%) felt that no one should teach younger or older adolescents about puberty and reproductive health, respectively.

Figure 3 | Perceived appropriate people to teach adolescents about puberty (by ages of adolescents taught about puberty)

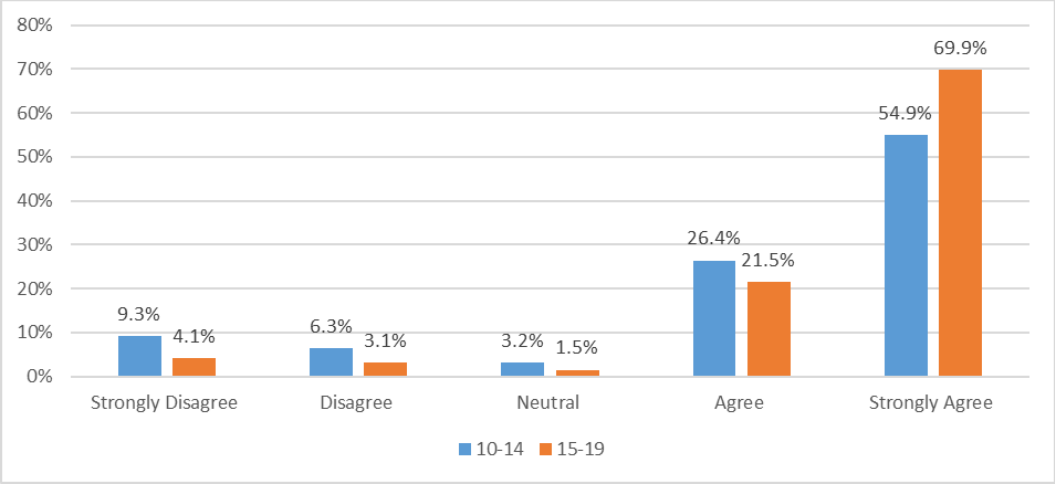


Statistically significant differences were seen between those in the intervention group who received PE and those who did not; notably, adolescents who *did not* receive PE were more likely to report that teachers were the most appropriate people to teach VYAs (ages 10-14 years) about puberty and reproductive health; 70.7% of adolescents in the intervention group who *did not* receive PE reported that teachers were the most appropriate as compared to 53.1% of adolescents who *did* receive PE. In contrast, 15.2% of adolescents in the intervention group who *did not* receive PE reported that parents were the most appropriate people to teach VYAs about puberty and reproductive health as compared to 33.5% of adolescents who *did* receive PE. No statistically significant differences between those in the intervention group who received PE and those that did not were seen on who appropriate people are to teach older adolescents (ages 15-19 years) about puberty.

Adolescent perceptions of community support for SRH education in schools

As indicated in Figure 4, the majority of respondents agreed or strongly agreed that most people in their community believed adolescents should learn about puberty and reproductive health with slight variation by the age group of adolescents who would receive the SRH education (54.9% agreement for younger adolescents and 69.9% for older adolescents). Only a small proportion of respondents perceived there to be limited support by community members for adolescents learning about puberty and reproductive health in school.

Figure 4 | Community members believe that adolescents should learn about puberty & reproductive health in school (by age groups of adolescents) as perceived by adolescents



8. GENDER ATTITUDES & NORMS

One of the core elements of the ATWA program is to support the formation of positive gender attitudes and norms. Outcome evaluation indicators have been designed to assess this area.

Outcome Indicator 1.4: Gender Equitable Attitudes

Outcome Indicator 1.4 is the proportion of adolescents with gender equitable attitudes, which are evaluated based on the Gender Equitable Attitudes scale. The scale was created from the following five variables that were answered using a 5-point Likert scale ranging from 1 – do not agree at all to 5 – strongly agree[1]:

- 1001: Boys and girls should be equally responsible for household chores. Do you agree or disagree?
- 1002: It is acceptable for boys to get more education than girls. Do you agree or disagree? (reverse-coded)
- 1008: A man should have the final word about decisions in the home. Do you agree or disagree? (reverse-coded)
- 1009: A woman should obey her husband in all matters. Do you agree or disagree? (reverse-coded)
- 1011: It is the responsibility of girls/women AND boys/men to prevent pregnancy if they are having sex. Do you agree or disagree?

Response options for each question were on a 5-point Likert scale, with 1 being the lowest possible score (least gender-equitable) and 5 being the highest possible score (most gender-equitable). For all respondents, a "don't know" response was coded as missing.

As shown in Table 39, among those in the control group, there was a 0.1-point increase in average score on gender equitable attitudes (range 1-5). Among those in the intervention group, there was on average a 0.8-point increase. This difference in change between intervention and control groups over time was statistically significant (coefficient=0.69, p<0.001), indicating that the ATWA intervention was associated with increased gender equitable attitudes. Regression analyses that examined interaction effects by sex, age, school status, and marital status show that the intervention effect was particularly strong for boys (coefficient=0.93, p<0.001). This indicates that the ATWA intervention was particularly useful in impacting boys' attitudes towards gender equitable behaviors and decisions. No statistically significant differences were seen between adolescents in the intervention group who received peer education and those who did not on gender equitable attitudes scores.

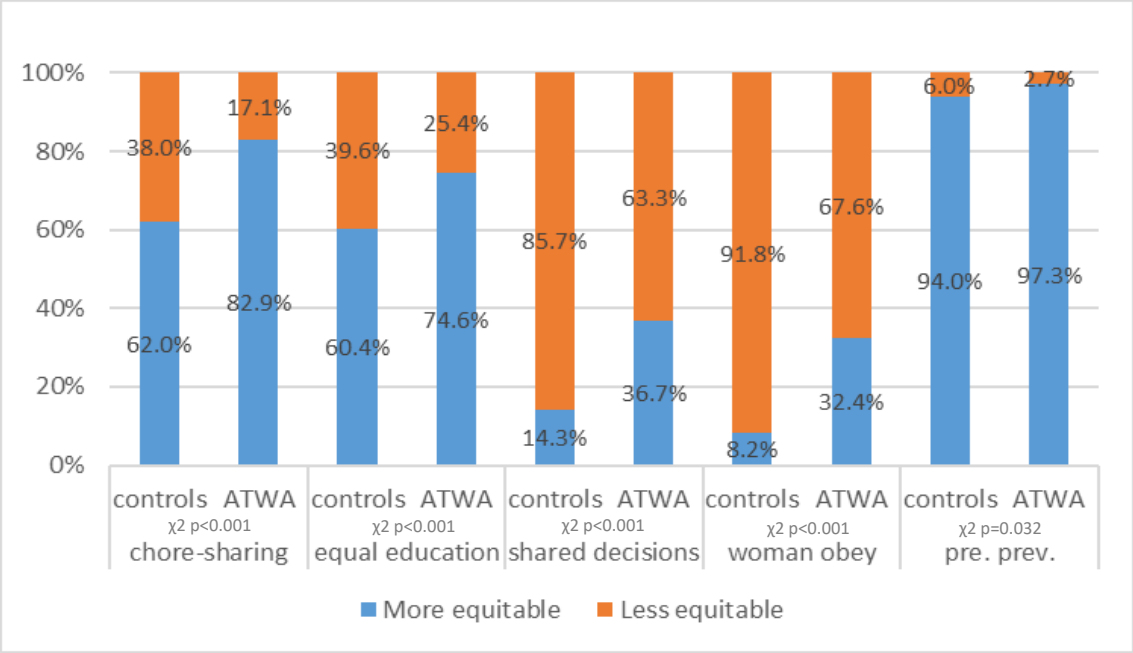
Table 39 | Outcome Indicator 1.4: Gender equitable attitudes

Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	1011	3.085	3.146	0.061	0.69	(0.56, 0.83)	**p < 0.001**
Intervention	987	3.135	3.931	0.796			
Interaction Terms							
sex (M, F) * study arm	1998				-0.32	(-0.47, -0.18)	**p < 0.001**
Male (M)							
Control	493	2.881	2.826	-0.055	0.93	(0.74, 1.12)	**p < 0.001**
Intervention	488	2.977	3.902	0.925			
Female (F)							
Control	518	3.290	3.450	0.160	0.48	(0.31, 0.65)	**p < 0.001**
Intervention	499	3.290	3.958	0.668			
age (<15, >=15) * study arm	1998				-0.25	(-0.56, 0.06)	p = 0.109
school status (OOS, IS) * study arm	1998				0.34	(-0.47, 1.14)	p = 0.416
marital status (single, married) * study arm	1998				-0.01	(-0.66, 0.63)	p = 0.973

Figure 5 provides a disaggregated perspective of the five items included in the overall gender equitable attitudes score. As shown, there is variation in the level of agreement across the gender equity statements. A large proportion of adolescents agree that there should be gender equity in household chore sharing, educational attainment, and pregnancy prevention efforts. However, smaller proportions of adolescents supported gender equitable norms in statements assessing

men's authority over women (assessed via two items on men having the final say in decisions and women obeying her husband in all matters). This highlights the prevalence of entrenched attitudes in these cultural contexts that start as early as adolescence in support of traditional gender roles. As shown in Figure 5, there were statistically significant differences between the control and intervention groups for all five items.

Figure 5 | Agreement with gender equity statements (chore-sharing, equal education, female obedience, and pregnancy prevention)



9. GENDER-BASED VIOLENCE

Although gender-based violence (GBV) was not included in the overall indicators in the M&E Framework, five survey items were included to assess adolescent views on GBV:

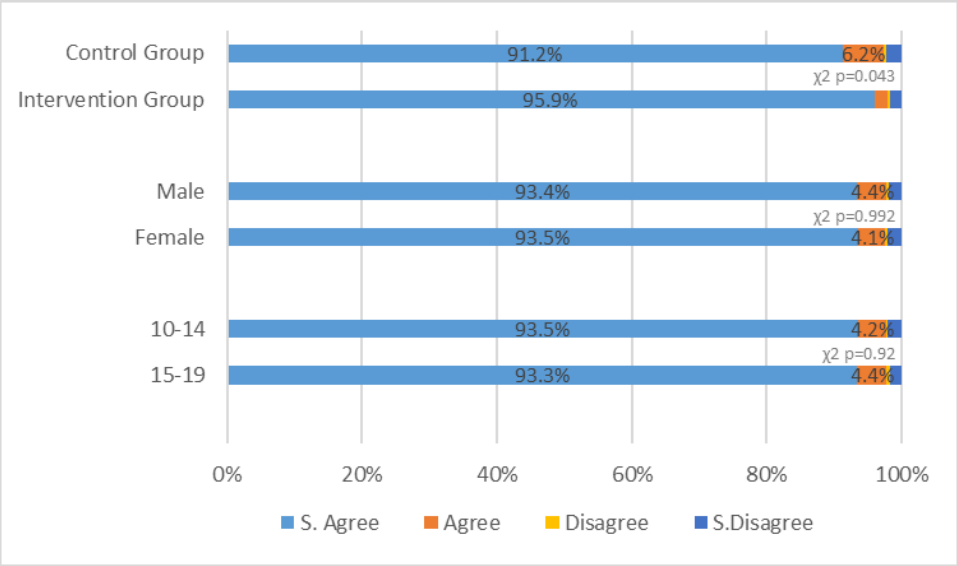
- 1101. No one has the right to force another person to engage in sexual activity. Do you agree or disagree?
- 1102. If a girl refuses to have sexual intercourse with her boyfriend, it is acceptable for him to try and persuade her by using some force or pressure. Do you agree or disagree?
- 1103. There are times when a woman deserves to be beaten by her husband. Do you agree or disagree?
- 1104. A woman should tolerate violence for the sake of her family. Do you agree or disagree?

- 1105. If a woman is abused, it was not her fault for putting herself in that situation. Do you agree or disagree?[10]

Country offices in Mali and Niger suggested that these items not be asked of in-school adolescents. As such, the responses to these questions only represent the Burkinabe adolescents and out-of-school adolescents ages 10-19 in Niger. This also means that peer education was not provided on topics surrounding gender-based violence and no supplemental analyses on peer education effects are included in this section.

The vast majority of adolescents strongly agreed that no one has the right to force another person to engage in sexual activity (93.4%). As shown in Figure 6, by intervention group, 91.2% of adolescents in the control group and 95.9% of adolescents in the intervention group strongly agreed with this statement. The difference observed between intervention and control group across response categories was statistically significant (χ2 p=0.043). By sex, 93.4% of males and 93.5% of females strongly agreed with the statement, and the difference between these categories did not reach statistical significance (χ2 p=0.992). By age group, 93.5% of 10-14-year-olds and 93.3% of 15-19-year-olds strongly agreed with this statement; however, across response categories, the difference was not statistically significant (χ2 p=0.92).

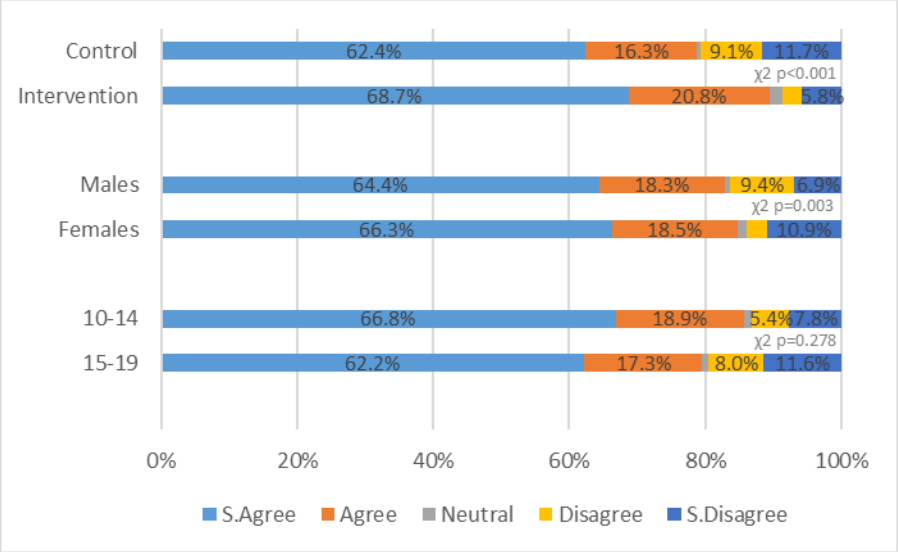
Figure 6 | Agreement that forced sex is inappropriate by study arm, sex and age



[10] At baseline, the item was worded as follows: "If a woman is raped, it was not her fault for putting herself in that situation. Do you agree or disagree?" Given the sensitive nature of the question being asked, edits were made for the endline survey to ask about rape in a way that was responsive to the cultural context and adolescents' comfort while responding. If the adolescent did not immediately understand what was being implied with this wording, enumerators would could explain it was about sexual abuse.

Interestingly, although a large majority of adolescents strongly agreed no one has the right to force another person to engage in sexual activity, a smaller proportion of adolescents strongly agreed (65.4% in the overall sample) that it is unacceptable to use pressure or force to persuade a girlfriend to have sex if she didn't want to. As shown in Figure 7, 62.4% of adolescents in the control group and 68.7% of adolescents in the intervention group strongly agreed that it is unacceptable to pressure or force a girlfriend to have sex, and the difference observed between intervention and control groups across response categories was statistically significant (p<0.001). By sex, 64.4% of males and 66.3% of females strongly agreed this is unacceptable. The difference seen by sex across all responses reached statistical significance (χ2 p=0.003). By age group, 66.8% of 10-14-year-olds and 62.2% of 15-19-year-olds found this unacceptable; however, the difference in responses across age categories was not statistically significant (χ2 p=0.278).

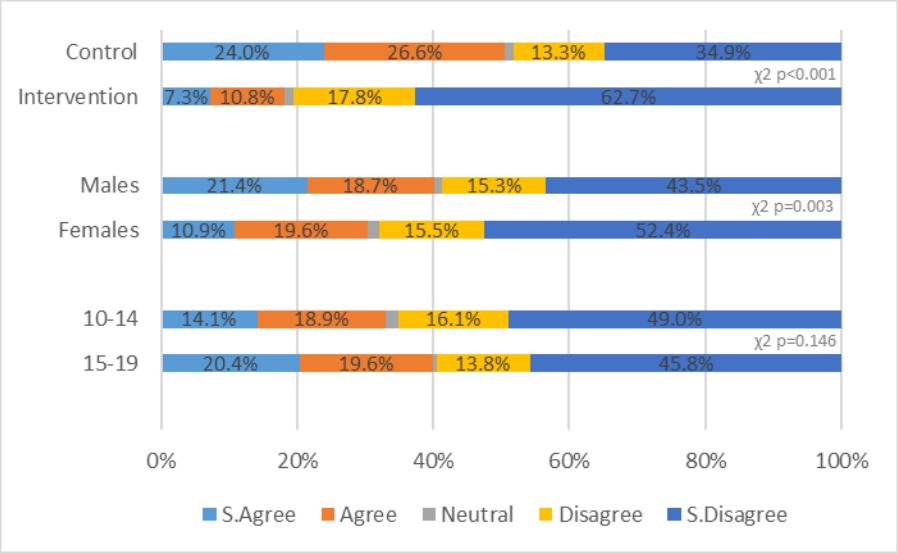
Figure 7 | Agreement with statement that it is unacceptable to persuade a girlfriend into having sex by use of pressure/force



Overall, only 48.0% of respondents strongly *disagreed* with the statement that there are times when a woman deserves to be beaten by her husband. As shown in Figure 8, by intervention group, only 34.9% of adolescents in the control group strongly disagreed with the statement, whereas 62.7% of adolescents in the intervention group strongly disagreed. The difference across the response categories was statistically significant (χ2 p<0.001). Differences between sexes were seen, with 43.5% of males strongly disagreeing with this statement, in contrast to 52.4% of females strongly disagreeing with this statement, and the difference across response categories reached statistical significance (χ2 p=0.003). By age group, 49.0% of very young adolescents (ages 10-14 years) strongly disagreed with this statement as compared to 45.8% of older adolescents (ages 15-

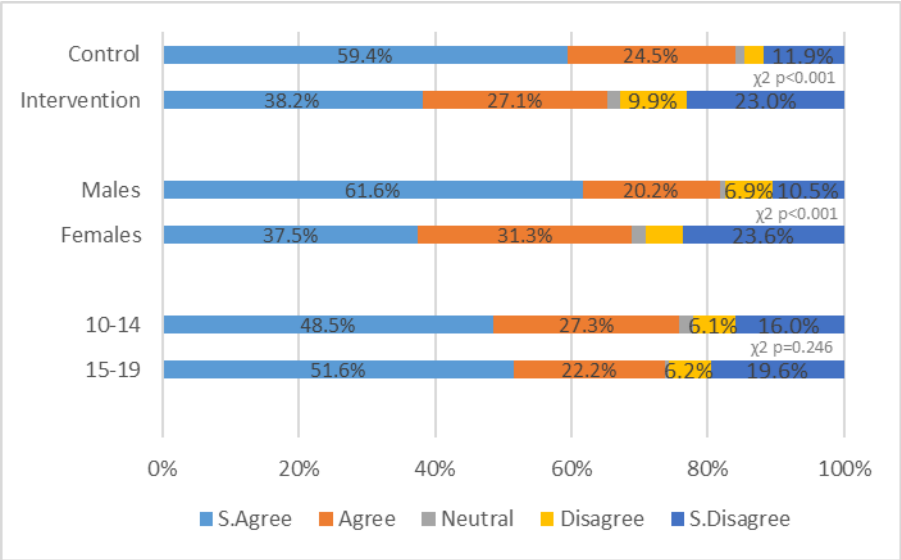
19 years); however, the overall responses across age groups were not statistically significant (χ2 p=0.146).

Figure 8 | Agreement with statement that there are times when a woman deserves to be beaten by her husband



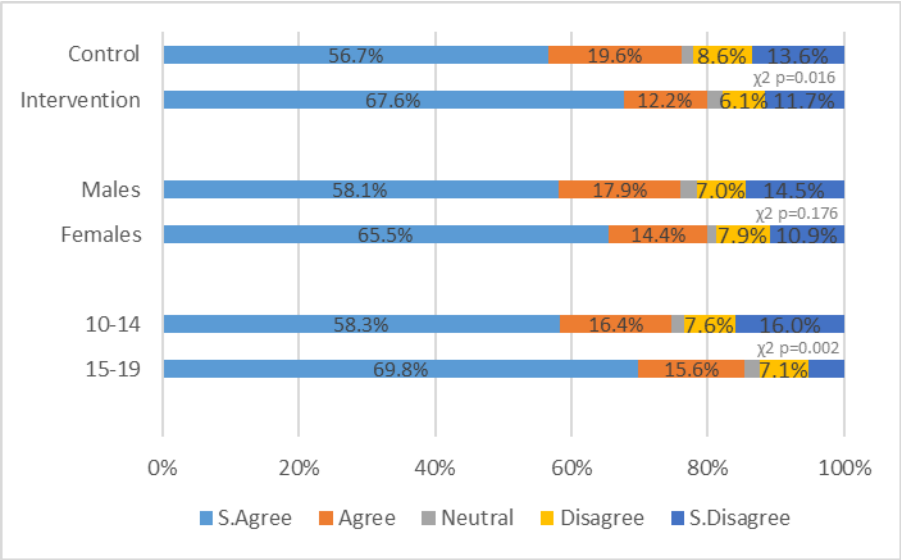
Overall, 49.4% of respondents strongly agreed that a woman should tolerate violence for the sake of her family. As shown in Figure 9, by study arm, adolescents in the control group strongly agreed that women should tolerate violence at a higher rate than adolescents in the intervention group (59.4% versus 38.2%, respectively). The overall difference in responses across control and intervention groups reached statistical significance (χ2 p<0.001). When exploring responses by sex, a majority of males strongly agreed women should tolerate violence (61.6%) while females strongly agreed at a much lower rate (37.5%). The differences observed by sex category was statistically significant (χ2 p<0.001). By age group, 48.5% of 10-14-year-olds and 51.6% of 15-19-year-olds strongly agreed with the statement, but there were greater levels of variation in levels of disagreement. The differences by age group observed across response categories were not statistically significant (χ2 p=0.246).

Figure 9 | Agreement with statement that a woman should tolerate violence for the sake of her family



Finally, 61.8% of respondents strongly agreed that a woman is not at fault for putting herself in that situation if she is abused. As shown in Figure 10, responses varied by control and intervention groups. A smaller proportion (56.7%) of adolescents in the control group strongly agreed that a woman is *not at fault* for putting herself in that situation if she is abused, with 67.6% of adolescents in the intervention group strongly agreeing that a woman is *not* at fault. The difference between control and intervention group responses overall was statistically significant (χ2 p=0.016). Variation by sex was also observed, with 58.1% of males and 65.5% of females strongly agreeing with this statement. The overall differences in responses across sex, however, were not statistically significant (χ2 p=0.176). By age group, 58.3% of 10-14-year-olds and 69.8% of 15-19-year-olds strongly agreed that it was not a woman's fault. The differences in responses across age groups were statistically significant (χ2 p=0.002).

Figure 10 | Agreement with statement that if a woman is abused, it was not her fault for putting herself in that situation



10. SELF-EFFICACY

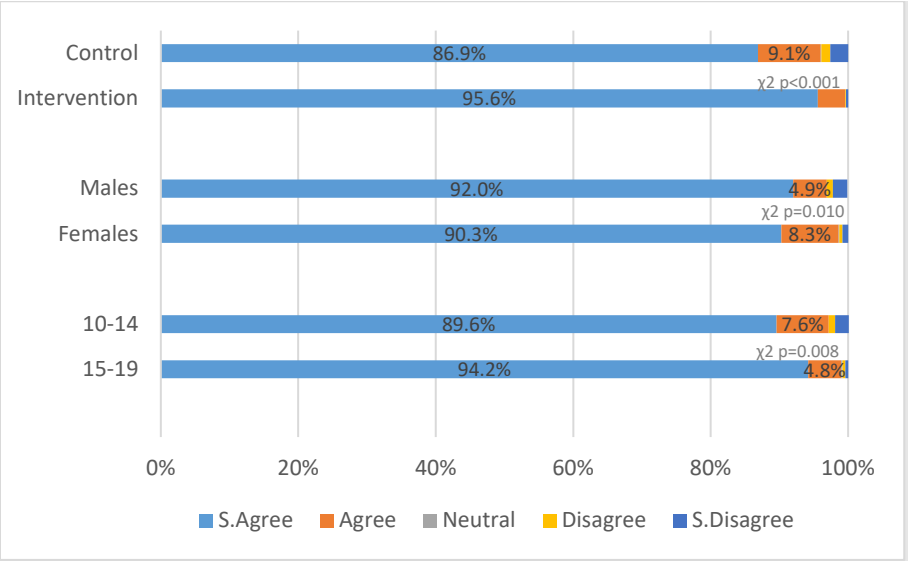
Although not included in the overall indicators in the M&E Framework, a number of survey items were included to assess adolescent self-efficacy with respect to general self-efficacy, self-efficacy surrounding puberty/change, self-efficacy surrounding unwanted sexual attention, self-efficacy in practicing safe sex, and ability to resist peer pressure. Response options for all items were a 5-point Likert scale where 5 is strongly agree, and 1 is strongly disagree.

Self-efficacy

The first question assessed general levels of self-efficacy and asked, "If you try hard, you can improve your situation in life." This question was asked of all adolescents in Mali and Burkina Faso; however, it was not asked of primary students in Niger as this topic was not covered in the curriculum. The vast majority (91.1%) of adolescents strongly agreed that they could improve their situation in life if they tried hard. As shown in Figure 11, intervention arms were different in their levels of strong agreement with this statement (86.9% control and 95.6% intervention). Overall, the differences in level of agreement between intervention arms were statistically different ($\chi 2$ $p<0.001$). By sex, a larger proportion of males strongly agreed when compared to females (92.0% of males versus 90.3% of females) and these differences seen across all responses were also statistically significant ($\chi 2$ $p=0.010$). By age, 89.6% of very young adolescents (10-14 years) strongly agreed with this statement, and 94.2% older adolescents (15-19 years) strongly agreed,

and when looking across the 5-point Likert scale responses there were statistically significant differences by age (χ2 p=0.008). No differences were seen in this measure between adolescents in the intervention group who received peer education and those who did not.

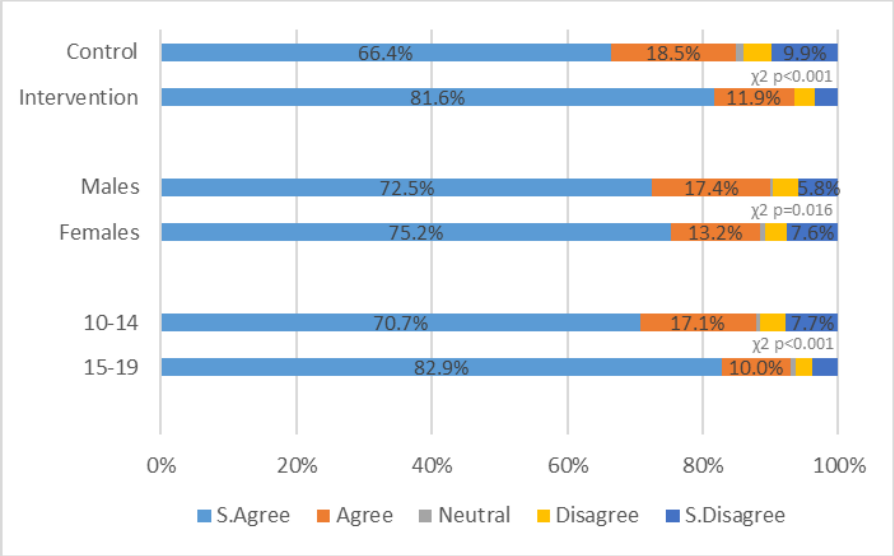
Figure 11 | Self-efficacy: Trying hard can lead to improvements in life



Self-efficacy in puberty

All respondents in each of the three countries were asked for their agreement with the statement that they are able to ask questions about puberty to a trusted adult. As shown in Figure 12, the majority of adolescents in both the control (66.4%) and intervention group (81.6%) strongly agreed that they could ask questions about puberty to an adult; overall, there were statistically significant differences between the groups' levels of agreement (χ2 p<0.001). Male adolescents reported they strongly agreed to the statement at a slightly lower prevalence when compared to female students (72.5% versus 75.2%). The overall differences observed across sexes were statistically significant (χ2 p=0.016). By age, younger adolescents strongly agreed at slightly lower rates than older adolescents (70.7% versus 82.9%) and the overall differences in levels of agreement between age groups were statistically significant (χ2 p<0.001).

Figure 12 | Agreement with statement that adolescent can ask questions about puberty to a trusted adult



We found statistically significant differences between adolescents in the intervention group who received PE and those who did not; 75.0% of adolescents in the intervention group who did *not* receive PE reported they strongly agreed with the statement that they are able to ask questions about puberty to a trusted adult as compared to 89.5% of adolescents who *did* receive PE (χ2 p<0.001).

Self-efficacy related to unwanted sexual attention

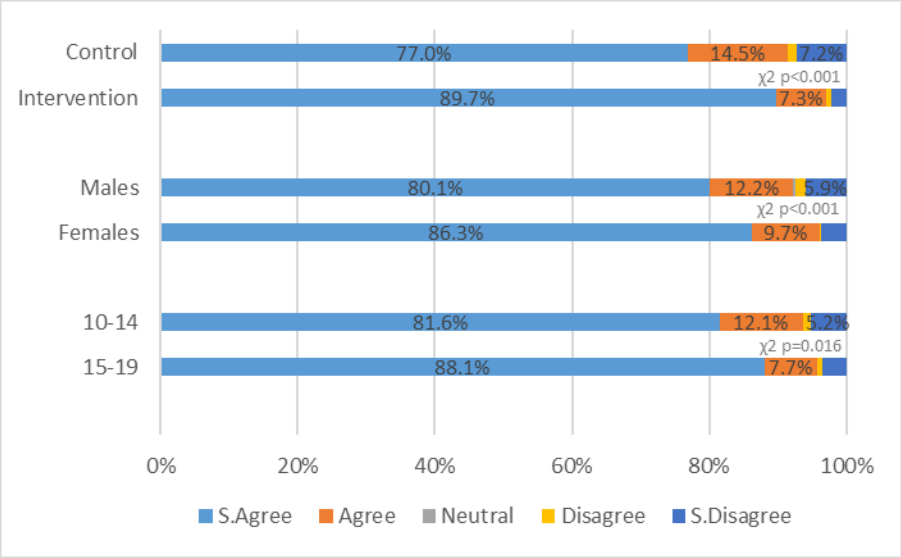
All respondents in each of the three countries were asked three questions related to agreement about their self-efficacy related to unwanted sexual attention. These three items asked whether respondents agreed or disagreed with the following statements:

- 1203. You are able to refuse unwanted sexual attention from a stranger.
- 1204. If it happened, you could refuse unwanted sexual attention from a relative or someone else you know.
- 1205. You could tell a trusted adult about any unwanted sexual attention you may have experienced.

With respect to the first item, a majority (83.3%) of adolescents in the combined sample strongly agreed that they could refuse unwanted sexual attention from a stranger. As shown in Figure 13, when broken down by sub-group, we find that less (77.0%) adolescents in the control group than in the intervention group (89.7%) strongly agreed that they could refuse unwanted sexual

attention from a stranger. The overall differences between study arms were statistically significant (χ2 p<0.001). By sex, a similar rate of males and females strongly agreed with this statement (80.1% of males and 86.3% of females) but the overall differences observed by sex were statistically significant (χ2 p<0.001). A slightly lower proportion of younger adolescents (81.6%) than older adolescents (88.1%) strongly agreed that they could refuse unwanted sexual attention from a stranger and overall, there were statistically significant differences across age groups (χ2 p=0.016). No differences were seen in this measure between adolescents in the intervention group who received peer education and those who did not.

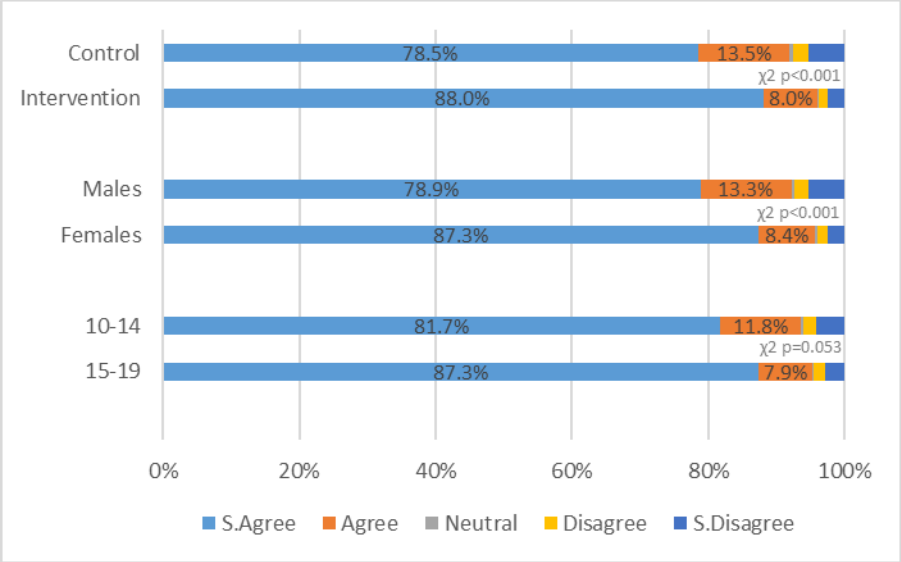
Figure 13 | Proportion of adolescents agreeing they could refuse unwanted sexual attention from a stranger



When asked if they could refuse unwanted sexual attention from a relative or someone else they knew (as compared refusing attention from a stranger), a smaller proportion of adolescents strongly agreed they could refuse, with 83.2% adolescents in the overall sample strongly agreeing with the statement. As shown in Figure 14, 78.5% of adolescents in the control group and 88.0% of adolescents in the intervention group strongly agreed. The overall differences between these groups were statistically significant (χ2 p<0.001). A smaller proportion of males as compared to females strongly agreed (78.9% of males and 87.3% of females), and the overall differences in levels of agreement by sex were statistically significant (χ2 p<0.001). By age, 81.7% of very young adolescents and 87.3% of older adolescents strongly agreed, but the overall differences in levels of agreement by age were not statistically significant (χ2 p=0.053). No differences were seen in

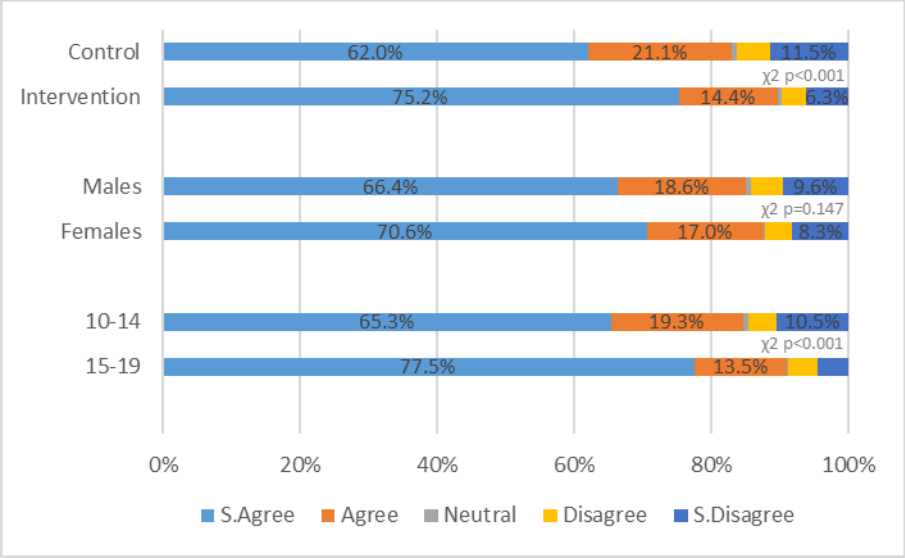
this measure between adolescents in the intervention group who received peer education and those who did not.

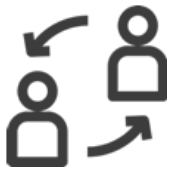
Figure 14 | Proportion of adolescents agreeing they could refuse unwanted sexual attention from a relative or someone they knew



A majority (68.5%) of adolescents in the combined sample strongly agreed that they could tell a trusted adult about unwanted sexual attention they had experienced. Figure 15 demonstrates significant differences in the proportion of adolescents that strongly agreed with the statement when stratified by study arm (62.0% of the control group versus 75.2% of the intervention group) and the overall differences in levels of agreement by study arm were statistically significant (χ2 p<0.001). By sex, fewer males (66.4%) than females (70.6%) strongly agreed with this statement, but the overall differences were not statistically significant (χ2 p=0.147). By age, 65.3% of very young adolescents and 77.5% of older adolescents strongly agreed with this statement and the overall differences across age groups were statistically significant (χ2 p<0.001).

Figure 15 | Proportion of adolescents agreeing they could tell an adult about unwanted sexual attention they had experienced





We found statistically significant differences between adolescents in the intervention group who received PE and those who did not; 66.7% of adolescents in the intervention group who did *not* receive PE reported they strongly agreed with the statement that they could tell an adult about unwanted sexual attention they had experienced as compared to 79.5% of adolescents who *did* receive PE ($\chi 2$ p=0.014).

Self-efficacy in wanted and safe sex

Three survey items were designed to assess adolescents' perceived self-efficacy surrounding safe and consensual sexual activity. These included:

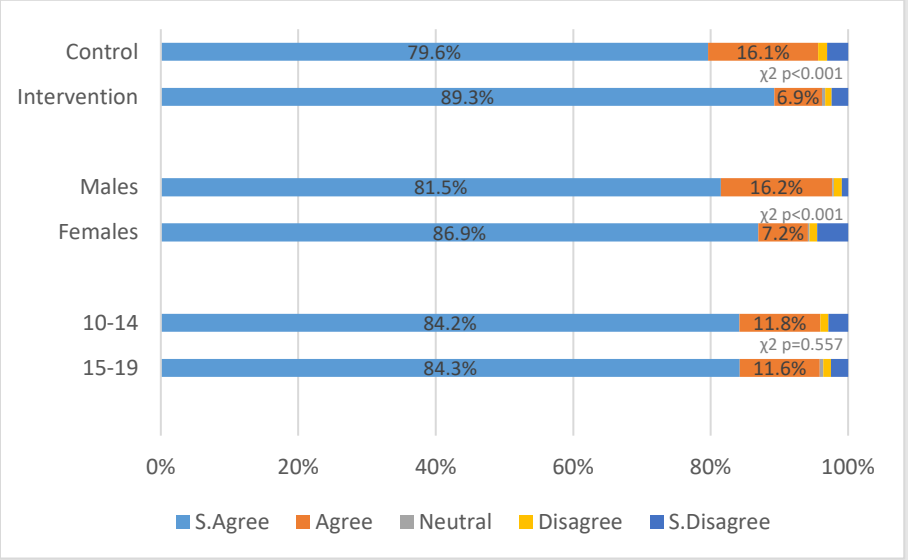
- 1206: You could refuse sexual intercourse with a boyfriend / girlfriend even if he/she wanted to have it. Do you agree or disagree?
- 1207: If you needed to, you would feel confident in your ability to insist on using condoms with a sexual partner. Do you agree or disagree?
- 1208: If you needed to, you would feel confident in your ability to use contraception. Do you agree or disagree?

All three questions were asked of Burkinabe adolescents; however, question 1206 was not asked of in-school Malian adolescents of any age nor of the youngest in-school Nigerien adolescents ages 10-14 years, question 1207 was asked of all respondents aside from the youngest in-school

Nigerien adolescents ages 10-14 years, and question 1208 was asked to all girls aside from the youngest in-school Nigerien adolescent girls ages 10-14 years.

For the item assessing perceived self-efficacy in refusing sexual intercourse with a partner, as shown in Figure 16, by intervention group, 79.6% of the control group compared to 89.3% of the intervention group strongly agreed. The difference between control and intervention across response options was statistically significant (χ2 p<0.001). By sex, 81.5% of males strongly agreed with the statement as compared to 86.9% of females, and when looking at all the responses together, there was a statistically significant difference between sexes (χ2 p<0.001). By age, 84.2% of very young adolescents and 84.3% of older adolescents strongly agreed with the statement. The differences in response patterns across age categories was not statistically significant (χ2 p=0.557). No differences were seen in the measure between adolescents in the intervention group who received peer education and those who did not.

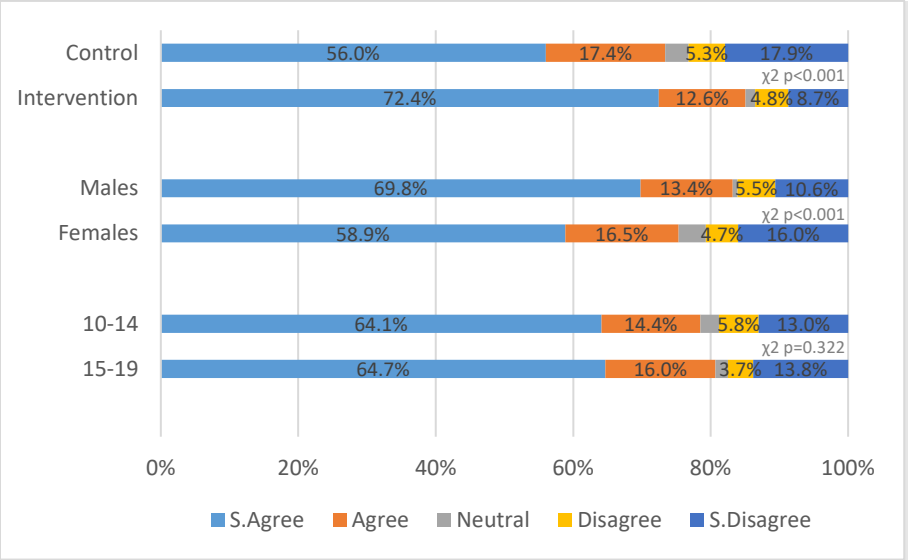
Figure 16 | Self-efficacy in refusing unwanted sex with boyfriend/girlfriend



Overall, 64.2% strongly agreed with the item stating, "If you needed to, you would feel confident in your ability to insist on using condoms with a sexual partner." As shown in Figure 17, by intervention group, 56.0% of the control group compared to 72.4% of the intervention group strongly agreed. The overall differences across intervention arms were statistically significant (χ2 p<0.001). The level of strong agreement was 69.8% among males and 58.9% among females and similarly, the overall differences in levels of agreement between males and females were statistically significant (χ2 p<0.001). By age group, 64.1% of very young adolescents and 64.7% of

older adolescents strongly agreed that they could insist on using condoms with a sexual partner. Overall differences in levels of agreement between younger and older adolescents on this survey item were not statistically significant (χ2 p=0.322).

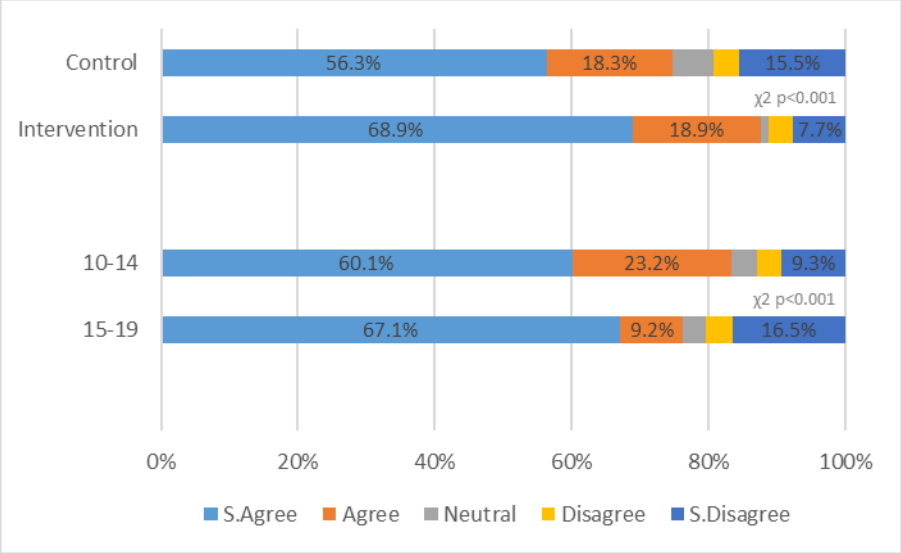
Figure 17 | Proportion of adolescents agreeing they could insist on condom use



We found statistically significant differences between adolescents in the intervention group who received PE and those who did not; there was a lower proportion of adolescents in the intervention group who *did not* receive PE (46.8%) who reported they could insist on condom use as compared to adolescents who *did* receive PE (70.6%) (χ2 p<0.001).

Finally, adolescent girls were asked, "If you needed to, you would feel confident in your ability to use contraception." Figure 18 shows that by intervention group, 56.3% of the control group compared to 68.9% of the intervention group strongly agreed with this statement. The overall differences in levels of agreement to this statement by study arm were statistically significant (χ2 p<0.001). By age, 60. 1% of very young adolescents and 67.1% of older adolescents strongly agreed with this statement, and the overall differences were statistically significant (χ2 p<0.001). No differences were seen in the measure between adolescents in the intervention group who received peer education and those who did not.

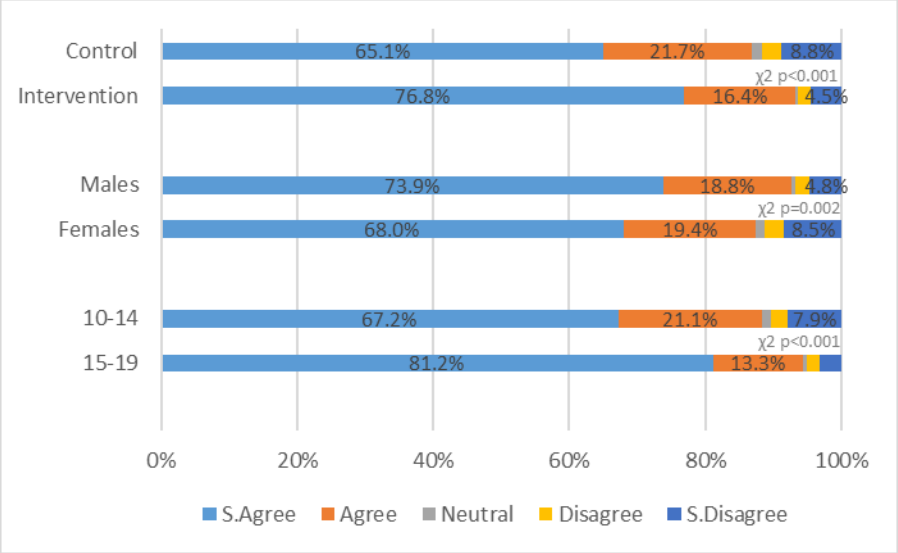
Figure 18 | Proportion of adolescents agreeing feel confident in their ability to use contraception



Self-efficacy in bodily autonomy

All adolescents in each of the three countries were asked whether they agreed or disagreed with the following statement about bodily autonomy: "You feel you can make your own decisions about your body." Overall, 70.9% of adolescents strongly agreed with this statement. As shown in Figure 19, by intervention group, 65.1% of the control group compared to 76.8% of the intervention group strongly agreed. Overall, the differences between the groups in levels of agreement about bodily autonomy were statistically significant ($\chi 2$ $p<0.001$). By sex, a higher proportion of males (73.9%) strongly agreed, as compared to females (68.0%) and the overall differences were statistically significant ($\chi 2$ $p=0.002$). By age, 67.2% of very young adolescents and 81.2% of older adolescents strongly agreed that they could make their own decisions about their body, and the overall differences between the two groups reached statistical significance ($\chi 2$ $p<0.001$). No differences were seen in this measure between adolescents in the intervention group who received peer education and those who did not.

Figure 19 | Self-efficacy in bodily autonomy



Self-efficacy & peer pressure

To assess knowledge of peer pressure, adolescents were asked whether a series of statements about peer pressure were true. These included:

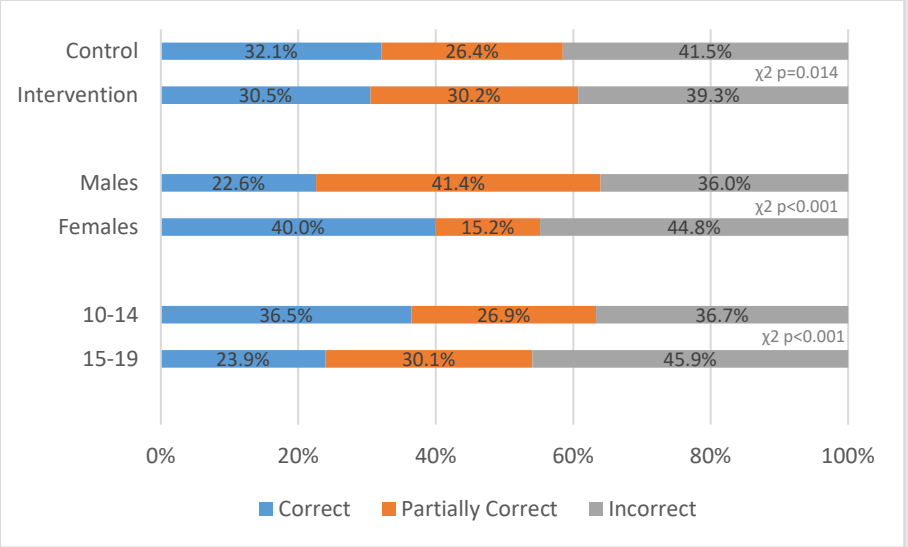
- 1210. Which of the following statements about peer pressure are true? (select all that apply)
    1. Peer pressure is when friends influence your attitudes, values and behavior.
    2. You are influenced by peers because you want to be accepted.
    3. Peer pressure is always negative. (incorrect)
- 1211. If it happens, you are able to resist negative peer pressure. Do you agree or disagree?

All Burkinabe adolescents were asked these three questions; however, these questions were not asked of in-school very young adolescents in Niger, as topics related to self-efficacy and peer pressure were not included in the curricula. In Mali, only question 1211 was asked.

Less than a third (30.7%) of adolescents correctly defined peer pressure and chose its mechanism of action (i.e., correctly selecting both responses 1 and 2 above). Over a quarter (27.7%) chose one of the two correct responses (coded as 'partially correct'). As shown in Figure 20, 32.1% of the control group compared to 30.5% of the intervention group answered correctly, and the overall differences by study arm were statistically significant (χ2 p=0.014). By sex, 22.6% of males and 40.0% of females answered correctly and the overall differences were statistically significant (χ2

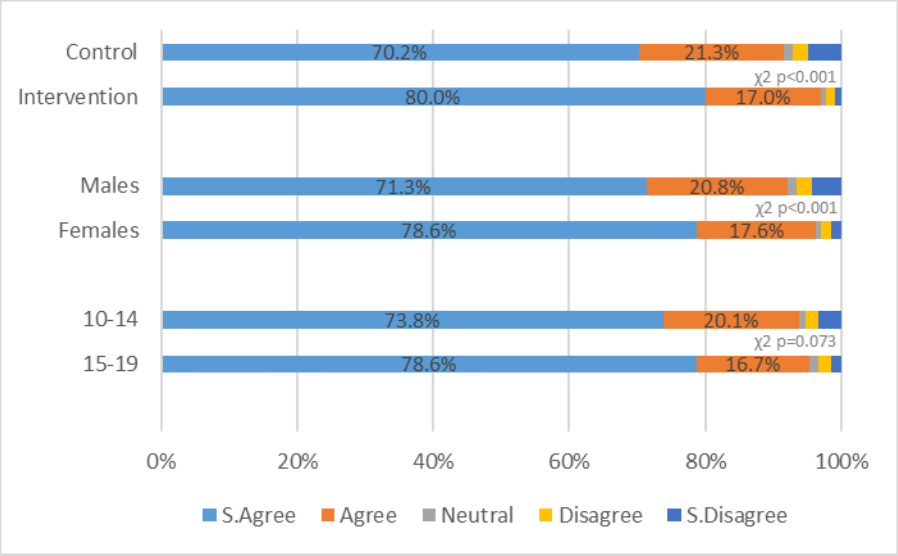
p<0.001). By age, 36.5% of very young and 23.9% of older adolescents answered correctly and the overall differences observed were statistically significant (χ2 p<0.001). No differences were seen in this measure between adolescents in the intervention group who received peer education and those who did not.

Figure 20 | Knowledge of peer pressure mechanism of action



Overall, over three-fourths (75.1%) of respondents across the three countries strongly agreed that they could resist negative peer pressure. As shown in Figure 21, adolescents in the control group had a lower level of strong agreement (70.2%) with this statement as compared to adolescents in the intervention group (80.0%), and the overall differences between the groups in their levels of agreement reached statistical significance (χ2 p<0.001). By sex, 71.3% of males and 78.6% of females strongly agreed they could resist negative peer pressure and the overall differences across the groups were statistically significant (χ2 p<0.001). A smaller proportion of younger adolescents (73.8%) than older adolescents (78.6%) strongly agreed they could resist negative peer pressure but overall differences were not statistically significant (χ2 p=0.073). No differences were seen in this measure between adolescents in the intervention group who received peer education and those who did not.

Figure 21 | Proportion of adolescents agreeing they could resist negative peer pressure



11. CHILD MARRIAGE

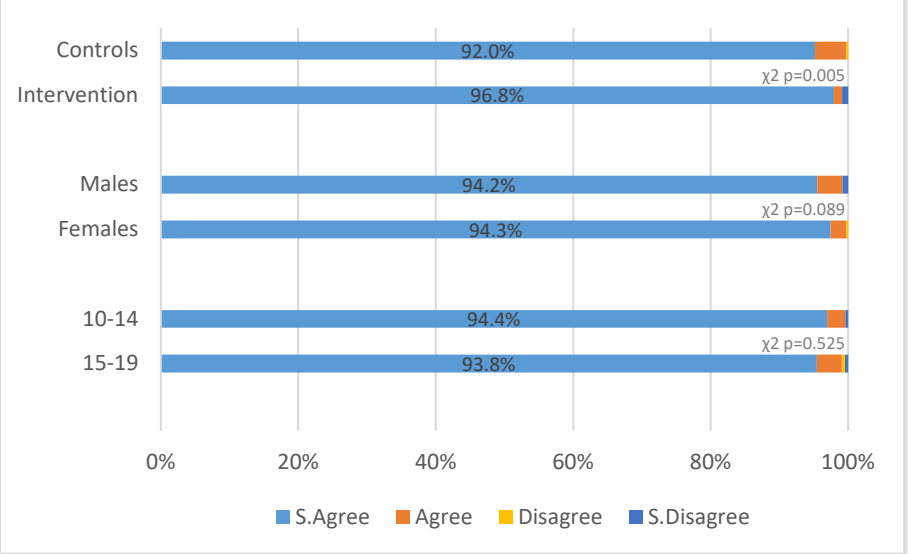
Two survey items assessed adolescent views on the appropriateness of child marriage, and three survey items assessed adolescents' perceptions on their ability to choose when and with whom to marry. The five items were worded as follows:

- 1301: Early marriage often has harmful consequences for a girl's health, psychological wellbeing and education. Do you agree or disagree?
- 1302: Early pregnancies carry high health risks for a young woman/girl and her baby. Do you agree or disagree?
- 1303: You have the right to choose whether, when and with whom you want to marry. Do you agree or disagree?
- 1304: If your mother/father want to marry you off, but you do not want to, would you be able to refuse?
- 1305: If your mother/father want to marry you off, but you do not want to, would you be able to seek help from a trusted adult to prevent your marriage?

All five items were asked of all Burkinabe adolescents; however, question 1301 was not asked of any in-school adolescents in Mali or Niger, and question 1302 was not asked of any in-school Malian adolescents nor Nigerien in-school adolescents ages 10-14 years. The other three questions (1303-1305) were asked of all adolescents.

With respect to the first item (1301) in this series, a large majority (94.2%) of respondents strongly agreed that early marriage often has harmful consequences for a girls' health, psychological wellbeing and education. As shown in Figure 22, adolescents in the control group had a slightly lower level of strong agreement (92.0%) when compared to adolescents in the intervention group (96.8%); overall, the differences between study groups were statistically significant (χ2 p=0.005). Perhaps interestingly, this proportion of strong agreement that early marriages have harmful consequences was slightly higher among males (94.2%) as compared to females (94.3%), though the overall differences in levels of agreement between males and females were not statistically significant (χ2 p=0.089). Levels of agreement were relatively similar across age category, with 94.4% of very young and 93.8% of older adolescents strongly agreeing that child marriage has harmful consequences, and the overall differences in levels of agreement by age group were not statistically significant (χ2 p=0.525). No analyses for peer education were possible as adolescents in the intervention group who received peer education were not asked this question.

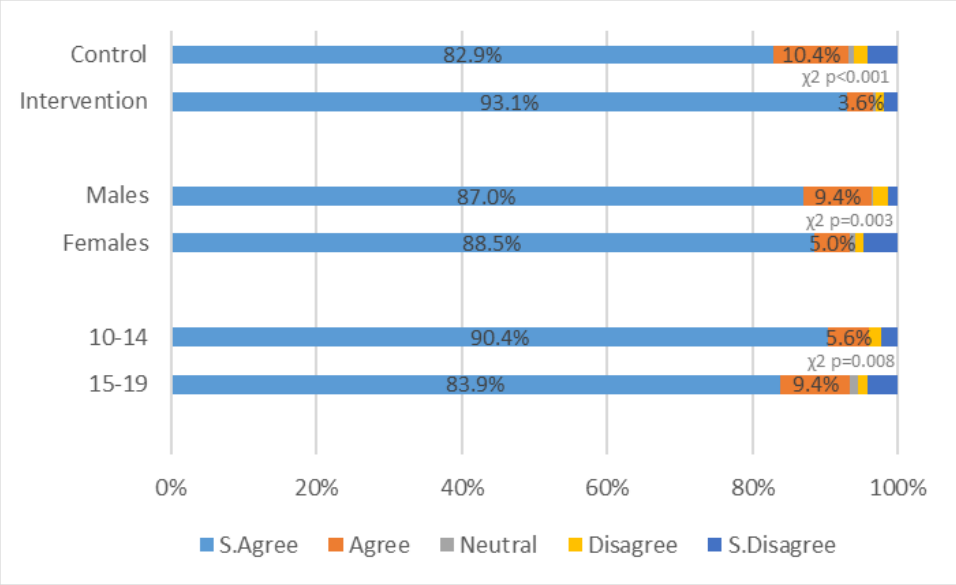
Figure 22 | Proportion of adolescents agreeing that early marriage often has harmful consequences for a girl's health, psychological wellbeing and education



When asked whether early pregnancies carry high health risks for a young woman/girl and her baby, nearly all respondents strongly agreed (87.7%) or agreed (7.2%) that early pregnancies carry high health risks for a young woman/girl and her baby. As shown in Figure 23, adolescents in the control group had a lower level of strong agreement (82.9%) when compared to adolescents in the

intervention group (93.1%), and the overall differences between study arms were statistically significant (χ2 p<0.001). When examining differences by sex, the proportions were relatively even with 87.0% of adolescent males and 88.5% of adolescent females responding with a strong agreement. The overall differences between sexes were statistically significant (χ2 p=0.003). Younger adolescents had a higher level of strong agreement (90.4%) as compared to older adolescents (83.9%), and the overall differences were statistically significant (χ2 p=0.008).

Figure 23 | Proportion of adolescents agreeing that early pregnancy often has harmful consequences for a girl's health, psychological wellbeing and education

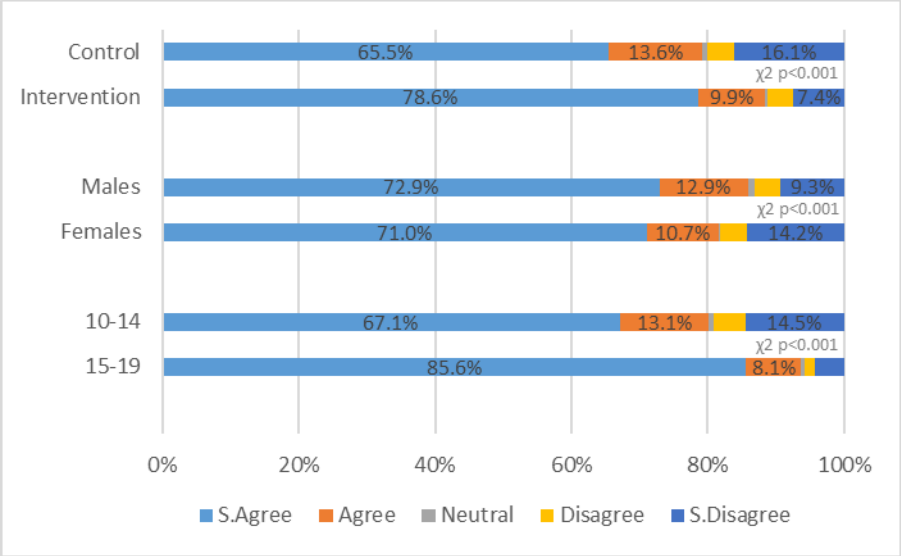


We found statistically significant differences between adolescents in the intervention group who received PE and those who did not; there was a lower proportion of adolescents in the intervention group who *did not* receive PE (50.0%) who strongly agreed that early pregnancy often has harmful consequences for a girl's health, psychological wellbeing and education as compared to adolescents who *did* receive PE (80.7%) (χ2 p<0.042).

Nearly nine in ten respondents (71.9%) in the overall sample indicated strong agreement with the statement that they have the right to choose whether, when and with whom they want to marry, with only 11.8% of respondents indicating they strongly disagreed. When examined by sub-group, as shown in Figure 24, adolescents in the control group had a lower level of strong agreement (65.5%) when compared to adolescents in the intervention group (78.6%), and the overall differences were statistically significant between control and intervention groups (χ2 p<0.001).

There is slight variation in this item by sex, with a slightly higher proportion of males strongly agreeing with this statement as compared to females (72.9% of males versus 71.0% of females), and the overall differences were statistically significant (χ2 p<0.001). By age, 67.1% of very young and 85.6% of older adolescents strongly agreed they had the right to choose conditions of their marriage and the overall differences by age reached statistical significance (χ2 p<0.001).

Figure 24 | Proportion of adolescents agreeing they have the right to choose whether, when, and with whom to marry

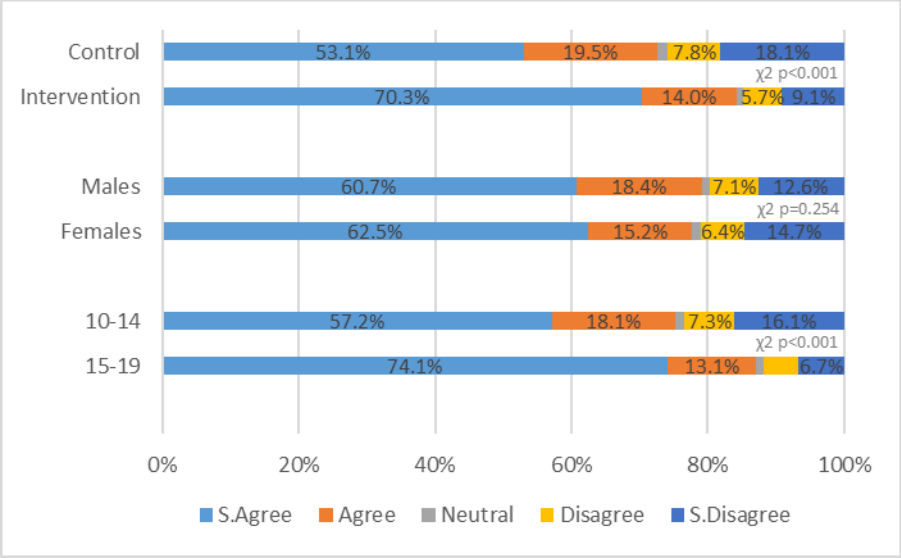


We found statistically significant differences between adolescents in the intervention group who received PE and those who did not; there was a lower proportion of adolescents in the intervention group who *did not* receive PE (65.0%) who strongly agreed that they had the right to choose conditions of their marriage as compared to adolescents who *did* receive PE (84.5%) (χ2 p<0.001).

In the overall sample, a majority (61.6%) of adolescents strongly agreed they could refuse if their mother/father wanted to marry them off, with 13.7% stating they strongly disagreed they could negotiate with their parents about an unwanted marriage. As shown in Figure 25, adolescents in the control group strongly agreed at lower rates and strongly disagreed at higher rates when compared to adolescents in the intervention group (53.1% versus 70.3% strong agreement, and 18.1% versus 9.1% strong disagreement by control and intervention group, respectively). The differences between these groups were statistically significant (χ2 p<0.001). By sex, fewer males strongly agreed compared to females that they could refuse if their mother/father wanted to marry them off, with 60.7% of males strongly agreeing and 62.5% of females strongly agreeing. When

exploring all responses, there were no statistically significant differences between sexes (χ2 p=0.254). Younger adolescents strongly agreed at lower rates as compared to older adolescents (57.2% versus 74.1%, respectively), and the overall differences were statistically significant (χ2 p<0.001).

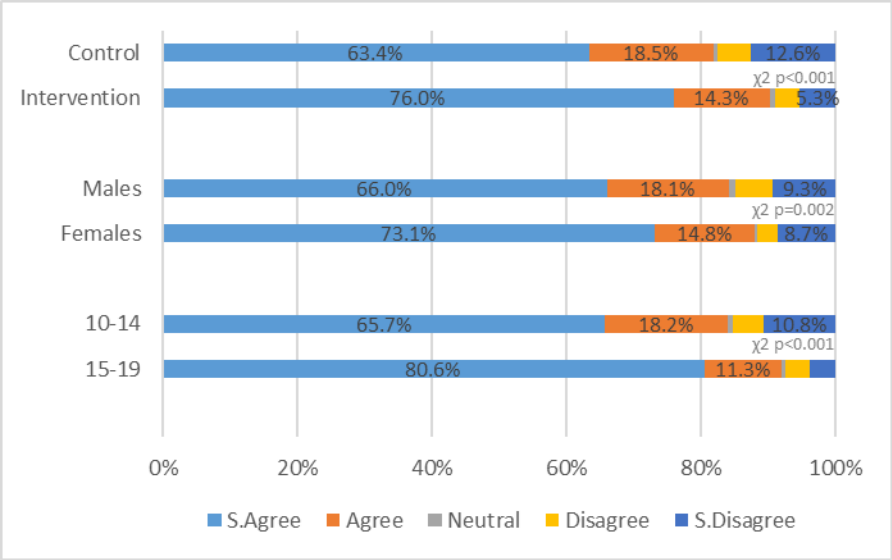
Figure 25 | Proportion of adolescents agreeing they could refuse if their parents wanted them to get married



We found statistically significant differences between adolescents in the intervention group who received PE and those who did not; there was a lower proportion of adolescents in the intervention group who *did not* receive PE (55.2%) who strongly agreed that they could refuse if their parents wanted them to get married as compared to adolescents who *did* receive PE (74.9%) (χ2 p=0.001).

In the overall sample, when asked whether they would be able to seek help from a trusted adult to prevent being married, 69.6% of respondents strongly agreed that they would be able to do so. When examined by sub-group, as seen in Figure 26, 63.4% of adolescents in the control group and 76.0% of adolescents in the intervention group strongly agreed. The overall differences were statistically significant across study arms (χ2 p<0.001). By sex, 66.0% of males and 73.1% of females strongly agreed, and the overall differences were statistically significant (χ2 p=0.002). By age, 65.7% of younger and 80.6% of older adolescents strongly agreed, and the overall differences by age reached statistical significance (χ2 p<0.001).

Figure 26 | Proportion of adolescents agreeing they could seek help from a trusted adult to prevent an unwanted arranged marriage



We found statistically significant differences between adolescents in the intervention group who received PE and those who did not; there was a lower proportion of adolescents in the intervention group who *did not* receive PE (57.0%) who strongly agreed that they could seek help from a trusted adult to prevent an unwanted arranged marriage as compared to adolescents who *did* receive PE (82.9%) ($\chi 2$ $p<0.001$).

Impact Indicator 5: Decrease in adolescent marriage

Impact indicator 5 is the decrease in the proportion of women 10-19 years who were married or in union before age 18 [5A] and before age 15 [5B]. As shown in Table 40, there was a 0.3 percentage point increase observed in adolescents reporting being married or in union before the age of 18 in the control group and a 0.8 percentage point decrease among adolescents in the intervention group, however this difference was not statistically significant ($p=0.212$). The models assessing interaction on age and school status did not converge. Similarly, as indicated below for Impact Indicator 5B, there was a 0.4 percentage point decrease observed in adolescents in the control group and no change among adolescents in the intervention group reporting being married or in union before the age of 15. Models assessing the difference in change between the study arms, age and school status over time did not converge. No statistically significant differences in either Impact Indicator 5A or 5B were seen between adolescents in the intervention group who received peer education and those who did not.

Table 40 | Impact Indicator 5: Decrease in adolescent marriage

Impact Indicator 5A: Decrease in proportion of female adolescents married before age 18							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	518	0.9%	1.2%	0.3%	OR=0.13	(0.01, 3.17)	p = 0.212
Intervention	499	1.0%	0.2%	-0.8%			
Interaction Terms							
sex (M, F) * study arm	This indicator pertains only to girls, and as such we did not test for differential impact by sex.						
age (<15, >=15) * study arm	NA				NA	NA	NA
school status (OOS, IS) * study arm	NA				NA	NA	NA
marital status (single, married) * study arm	This indicator pertains only to married adolescents, and as such we did not test for differential impact by marital status.						

Impact Indicator 5B: Decrease in proportion of female adolescents married before age 15							
Main Effects							
	N	Baseline (B)	Endline (E)	Difference (E-B)	Coefficient/OR	95% CI	p-value
Control	518	0.4%	0.0%	-0.4%	NA	NA	**NA**
Intervention	499	0.0%	0.0%	0.0%			
Interaction Terms							
sex (M, F) * study arm	This indicator pertains only to girls, and as such we did not test for differential impact by sex.						
age (<15, >=15) * study arm	NA				NA	NA	NA
school status (OOS, IS) * study arm	NA				NA	NA	NA
marital status (single, married) * study arm	This indicator pertains only to married adolescents, and as such we did not test for differential impact by marital status.						

12. FEMALE GENITAL CUTTING

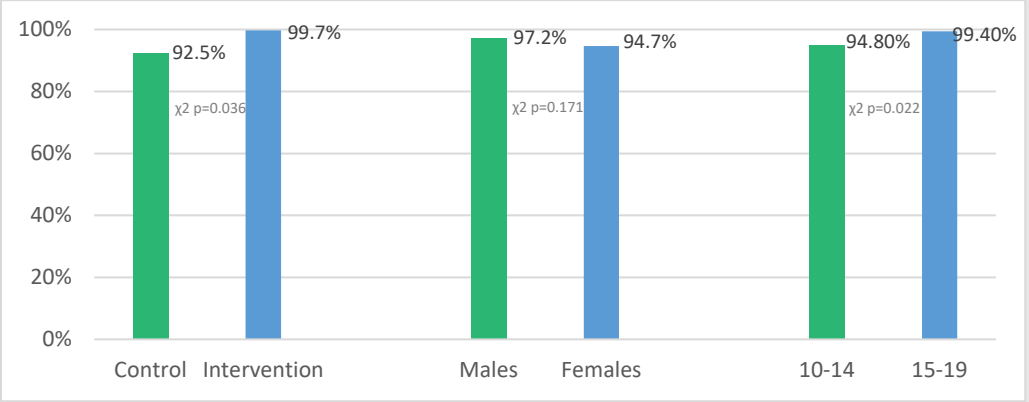
Finally, four survey items about female genital cutting (FGC) were asked of all Burkinabe respondents. These survey items were worded as follows:

- 1401. Have you ever heard of female circumcision - a practice in which a girl may have part of her genitals cut? (yes/no)
- 1402. A girl should be circumcised. Do you agree or disagree?
- 1403. FGC causes serious physical and mental health complications for girls and women. Do you agree or disagree?
- 1404. Do you think that this practice should be continued? (yes/no)

A total of 95.2% of Burkinabe respondents had heard of FGC. As demonstrated in Figure 27, a smaller proportion of adolescents in the control group as compared to the intervention group had

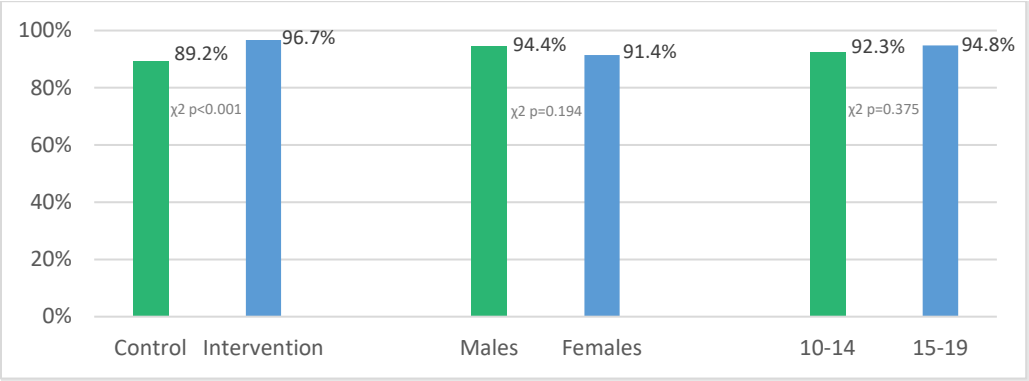
heard of FGC (92.5% of the control group; 99.7% of the intervention group) and this difference between study arms in the endline data was statistically significant (χ2 p=0.036). Differences by sex were not statistically significant with 97.2% of males and 94.7% of females having heard of FGC (χ2 p=0.171). Differences by age category reached statistical significance with younger adolescents less likely to have heard of FGC (94.8%) than older adolescents (99.40%) (χ2 p=0.022). Given that only Burkinabe adolescents (who did not receive peer education) answered these questions, analyses to assess peer education effects are not possible in this section on FGC.

Figure 27 | Proportion of Burkinabe adolescents who have heard about female circumcision by study arm, sex, and age



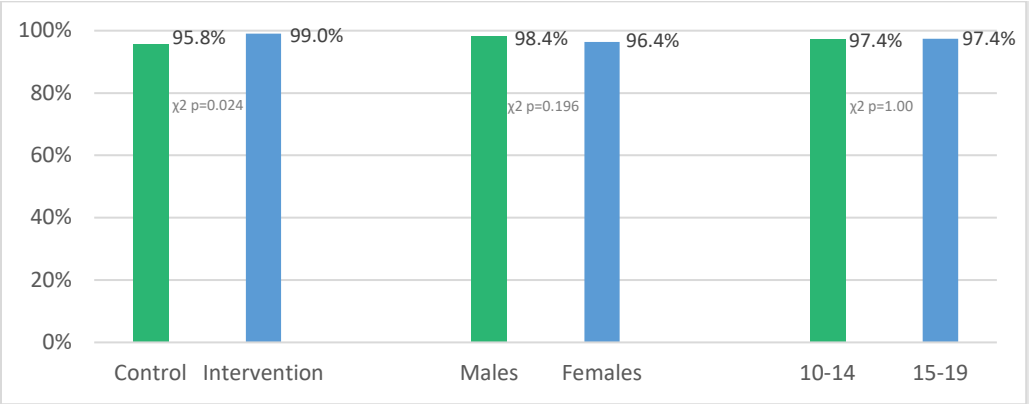
A majority (92.8%) of respondents stated a girl should not be circumcised. As shown in Figure 28, when stratified by subgroup, a lower proportion of adolescents in the control group (89.2%) compared to the intervention group (96.7%) agreed that girls should not be circumcised, and this difference reached statistical significance (χ2 p<0.001). When stratified by sex and age, there were no statistically significant differences (sex: χ2 p=0.194, age: χ2 p=0.375). The proportion agreeing that girls should not be circumcised was fairly balanced (94.4% of males and 91.4% of females; 92.3% of 10-14-year-olds and 94.8% of 15-19-year-olds).

Figure 28 | Proportion of Burkinabe adolescents agreeing that girls should not be circumcised by study arm, sex, and age



Overall, 97.4% of respondents agreed with the statement that FGC causes serious physical and mental health complications for girls and women. As shown in Figure 29, when broken down by sub-group, we find that a lower proportion of control respondents agreed that FGC causes serious physical and mental health complications for girls and women compared to the intervention group respondents (95.8% of the control group, 99.0% of the intervention group). This difference was statistically significant (χ2 p=0.024). The differences between the sex and age group were not statistically significant (sex: χ2 p=0.196, age: χ2 p=1.00), with 98.4% of males and 96.4% of females and 97.4% of 10-14-year-olds and 97.4% of 15-19-year-olds agreeing with the statement that FGC causes serious physical and mental health complications for girls and women.

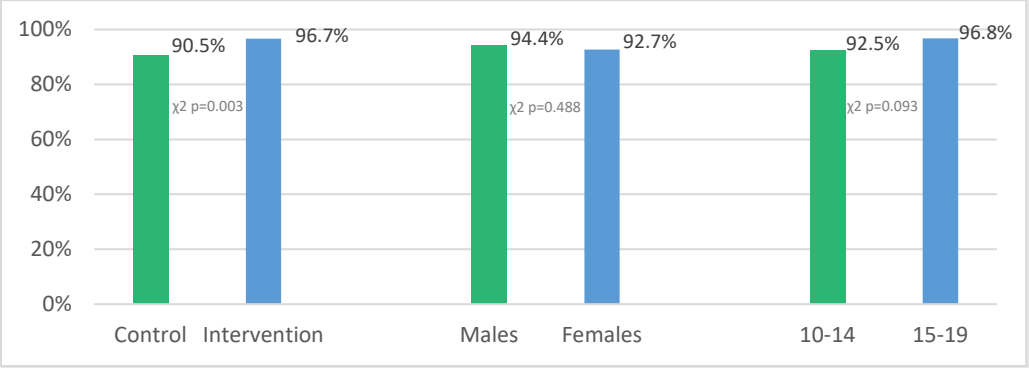
Figure 29 | Proportion of Burkinabe adolescents who agree that FGC causes serious physical and mental health complications for girls and women by study arm, sex, and age



Finally, when asked whether the practice of female circumcision should be continued, the vast majority (93.5%) of respondents stated it should *not* be continued. As shown in Figure 30, when disaggregated by sub-group, we see that a lower proportion of adolescents in the control group

felt FGC should not be continued as compared to the intervention group (90.5% of the control group, 96.7% of the intervention group). This difference was statistically significant (χ2 p=0.003). More males than females felt the practice should not be continued (94.4% of males, 92.7% of females) but the overall difference was not statistically significant (χ2 p=0.488). Finally, a smaller proportion of younger versus older adolescents felt the practice should not continue (92.5% of 10-14-year-olds, 96.8% of 15-19-year-olds), but this difference was not statistically significant (χ2 p=0.093).

Figure 30 | Proportion of Burkinabe adolescents stating FGC should *not* be continued by study arm, sex and age



SUMMARY AND CONCLUSIONS

The Adolescent in Transition in West Africa (ATWA) program aims to influence and promote positive adolescent sexual and reproductive health and rights (ASRHR) outcomes by addressing some of the interrelated drivers of poor sexual and reproductive health and rights among very young (ages 10-14 years) and older (ages 15-19 years) adolescents in Burkina Faso, Mali, and Niger. This report highlights ATWA's impact in Year 2 of implementation as assessed using a rigorous cluster randomized controlled trial design and use of mixed effects difference-in-differences regression analyses. We find a range of positive impacts across program domains, as described in the subsequent sub-sections.

Intervention effects on outcome indicators

In summary of key findings from the longitudinal difference-in-differences analyses on the key outcome indicators, we find that ATWA led to many significant improvements in its intended

outcomes, including: increases in intentions to use modern contraception; improvements in gender equitable attitudes (with an especially strong intervention effect for boys); increases in the number of known modern contraceptive methods; large improvements in correct knowledge about puberty and development; large improvements in knowledge on STI risk, prevention, and treatment; significant improvements in knowledge of HIV prevention; significant improvements in knowledge of where to seek SRH services; improvements in menstruation knowledge (especially for boys); and improved perceptions of community support for adolescents receiving and accessing information and services on puberty, contraception, and SRH services. These findings are summarized by indicator in Table 41 below.

Table 41 | Year 2 Intervention Effects

Outcome 1: Improved sexual and reproductive health and rights and gender equality knowledge, intent, and behaviors among adolescents		
✓ = statistically significant intervention effect in overall sample only for [X] = intervention effect not statistically significant in overall sample, but statistically significant by sex, age, school status, and/or marital status ✓ especially for [X] = intervention effect in overall sample *and* a statistically significant interaction by sex, age, school status, and/or marital status ✗ = no statistically significant intervention effects		
Indicator	**Indicator Definition**	**Intervention Effect**
[1.1] Proportion of adolescents with intent to use modern contraception	Number of adolescents who respond yes to planning to use modern contraception in the future [timeframe may be defined by country program], disaggregated by method	✓
[1.2] Proportion of sexually active adolescents reporting using a condom at last sex	*Numerator*: Number of adolescents who respond yes to having used a condom at last sex *Denominator*: Number of sexually active adolescents surveyed	✗ *Strong positive trend but limited by small sample size (n=73)*
[1.3] Proportion of sexually active unmarried adolescents who use a condom consistently in the last 6 months	*Numerator:* Number of adolescents who respond yes to having used a condom every time they had sex in the last 6 months *Denominator:* Number of adolescents surveyed who are sexually active and unmarried	✗ *Strong positive trend but limited by small sample size (n=48)*
[1.4] Proportion of adolescents with gender equitable attitudes through	*Numerator:* Proportion of adolescents with significant increase in average score on gender equitable attitude scale	✓ especially for boys

average score on gender equitable attitude scale	*Denominator:* Number of adolescents surveyed	
[1.5.A] Average number of modern contraceptive methods known among women 10-14 years old	Average number of modern contraceptive methods known to surveyed female adolescents ages 10-14 years	✓
[1.5.B] Average number of modern contraceptive methods known among women 15-19 years old	Average number of modern contraceptive methods known to surveyed female adolescents ages 15-19 years	✓
[1.6] Proportion of adolescents with correct knowledge about body changes during puberty, the menstrual cycle, fertility and conception, pregnancy risk and prevention	Composite indicator of 8 items measuring proportion of adolescents who respond correctly to a series of questions on puberty, menstruation, pregnancy risk and prevention	✓
[1.7] Proportion of adolescents with correct knowledge about STI risk and prevention and treatment	Composite indicator measuring proportion of adolescents who responded correctly to series of 4 questions on STI prevention and treatment	✓
[1.8] Proportion of adolescents with comprehensive knowledge of HIV prevention	Composite indicator measuring proportion of adolescents who responded correctly to series of 6 questions on HIV prevention	✓
[1.9] Proportion of adolescents with knowledge of where to seek SRH services, including where to get tested for HIV, where to get condoms, and where to get contraceptives	*Numerator*: Proportion of adolescents that knows where to seek SRH services. *Denominator*: Number of adolescents surveyed	✓
[1.10] Proportion of girls who report properly disposing of absorbent materials (sanitary napkins or menstrual cloth)	*Numerator:* Number of postmenarchal girls who report properly disposing of absorbent materials (sanitary napkins or menstrual cloth) (i.e., putting into the rubbish) *Denominator:* Number of girls who use absorbent materials (sanitary napkins or menstrual cloth)	✗ *Positive trend but limited by small sample size (n=306)*
[1.11] Proportion of girls who report hygienically washing and drying reusable menstrual cloth	1.11.A: Girls who soaked menstrual materials among those who washed/reused materials 1.11.B: Girls who used soap when soaking menstrual materials (asked only of girls who reported soaking menstrual materials) 1.11.C: Girls who exposed menstrual materials to the sun every time when drying them (among all girls who washed menstrual materials)	✗ *Positive trend* ✗ *Positive trend, but high levels in both control and intervention groups* ✓

	1.11.D: Girls who reported their menstrual materials were always dry before reusing them (among all girls who washed menstrual materials) 1.11.E: Girls who reported ever using an iron on menstrual materials before re-use (among all girls who used iron-able materials)	✗ *Positive trend* ✓
Output 1.2: Adolescent girls in Niger, Mali and Burkina Faso, and out of school adolescent girls in Niger have the knowledge, materials, and in-school facilities to manage their menstruation in a hygienic, healthy, and dignified fashion		
Indicator	**Indicator Definition**	**Intervention Effect**
[1.2.3] Proportion of girls and boys that can answer a basic set of four questions about menstruation	*Numerator:* Number of girls and boys that can answer a basic set of questions about menstruation correctly *Denominator:* Surveyed adolescents	✓ especially for boys
[1.2.4] Proportion of girls that know how to hygienically manage menses	*Numerator:* Number of girls that can answer a set of five questions correctly about how to hygienically manage menses *Denominator*: Surveyed female adolescents	✗ *Positive trend*
[1.2.5] Proportion of girls and boys aged 10 to 19 that know how to dispose of menstrual material	*Numerator:* Proportion of girls and boys aged 10 to 19 that can answer a question correctly about the correct disposal of menstrual material waste *Denominator:* Number of targeted adolescents aged 10 to 19 with LSE/MHM education	✓
[1.2.6] Proportion of girls and boys that can identify that menstruation is a normal biological function of the female body	*Numerator*: Number of girls and boys that answer a question correctly regarding that menstruation is a normal biological function of the female body *Denominator:* Surveyed adolescents	✓
**Indicators not included in this list are assessed using monitoring data and are not included in this report.*		
Output 1.4: Communities demonstrate support for LSE and SRH services for adolescents **Only adolescents were surveyed in the ATWA Outcome Evaluation. As such, indicators under Output 1.4 are assessed via adolescents' perceptions of community support.*		
Indicator	**Indicator Definition**	**Intervention Effect – support for:**
		10-14 / **15-19**
[1.4.1] Proportion of adolescents who feel religious community leaders support the provision of LSE/SRHR	Proportion of adolescents who feel religious community leaders support adolescents ages 10-14 and 15-19 years:	

information and SRH services to adolescents ages 10-14 and 15-19 years	▪ learning about puberty/life skills education ▪ learning about reproductive health and contraception ▪ accessing sexual and reproductive health services	✓ ✓ ✓	✗ ✓ ✗
[1.4.2] Proportion of adolescents who feel school leaders support the provision of LSE/SRHR information and SRH services to adolescents ages 10-14 and 15-19 years	Proportion of adolescents who feel school leaders support adolescents ages 10-14 and 15-19 years: ▪ learning about puberty/life skills education ▪ learning about reproductive health and contraception ▪ accessing sexual and reproductive health services	✓ ✓ ✓	✓ ✓ ✓
[1.4.3] Proportion of adolescents who feel other community leaders support the provision of LSE/SRHR information and SRH services to adolescents ages 10-14 and 15-19 years	Proportion of adolescents who feel other community leaders support adolescents ages 10-14 and 15-19 years: ▪ learning about puberty/life skills education ▪ learning about reproductive health and contraception ▪ accessing sexual and reproductive health services	✓ ✓ ✓	✗ ✗ ✗

As also shown in Table 41 above, several findings related to the ATWA outcome indicators had positive trends, but did not reach statistical significance. For example, indicator 1.2— proportion of sexually active adolescents reporting using a condom at last sex—was not statistically significant, however, the p-value was marginally statistically significant (p=0.085) and the odds ratio was 6.92. The very strong positive trend (i.e., odds ratio much higher than 1.0) indicates an intervention effect, however despite this positive trend, and likely due to the small sample size of sexually active adolescents (n=73) we are unable to state with statistical certainty that ATWA contributed to improved rates of condom use at last sex among program participants. These small sample sizes are in part due to developmental realities of adolescents in this cultural context where few may be sexually active by the age of 19.

A number of indicators under Output 1.4 that measure community support for adolescents learning about puberty and contraception or receiving information about how to access SRH services reached statistical significance. There are notable differences seen by the age of adolescent receiving information and services, with much stronger intervention effects (i.e.,

differences between the control and intervention groups from baseline to endline) in perceived community support for the very young adolescents (ages 10-14 years). This is true for all types of community leaders (religious, school, and other types of civic leaders) and type of SRH support (These null results indicating no intervention effects are perhaps unsurprising given that the ATWA school-based programming was designed to reach adolescents, and the program team's interactions with community and religious leaders were limited in scope and frequency. Overall, we find that—between baseline and endline—there were small decreases in perceptions of community support among adolescents in both control and intervention groups. However, the decreases were on average of smaller magnitude among those in the intervention group than those in the control group; and in some instances—such as school leaders' support for older boys and girls learning about contraception—the intervention group saw small (but statistically insignificant) *increases* in perceptions of community support for LSE and SRH services for adolescents. The survey data do not permit an understanding of the causes of change in perceptions of support and these findings could be better understood with follow-up discussions with community-based implementers in each of the three countries.

Intervention effects on long-term impact indicators

Although the program team did not assume the 9-month (school year) ATWA intervention would lead to impacts on long-term outcomes – such as decreases in the adolescent pregnancy rate – survey data from the outcome evaluation did permit an examination of preliminary effects. As such, we include results on the long-term impact indicators for completeness in reporting. As shown below in Table 42, as assumed, there were either no intervention effects or the sample sizes were too small to permit conclusive findings from statistical analyses. This is largely due to the nature of the indicators, wherein many of the adolescents are not yet in a developmental stage where they have become sexually active or caused/had a pregnancy.

Table 42 | ATWA Impact Indicators

LONG-TERM IMPACT: Improved sexual and reproductive health and rights among adolescents		
Impact Indicator	**Indicator Definition**	**Intervention Effect**
[1] Decrease in adolescent birth rate *NB: adolescent parity is used as a proxy as we did not assess births by year in this study*	[1] The average number of births to female respondents ages 15-19	×

[2] Decrease in proportion of adolescents who have ever been pregnant or caused a pregnancy	[2] The percent of adolescent females who have ever been pregnant + the percent of adolescent males who have ever caused a pregnancy	✕
[3] Increase in need for family planning satisfied with modern contraception	[3A] Percentage of [sexually active] adolescents age 15-19 years currently married or in union who have their need for family planning satisfied with modern contraceptive methods	*Inconclusive* *Model non-convergence due to 0% among controls at baseline*
	[3B] Percentage of female adolescents (15-19) who are sexually active and who have their need for contraception satisfied with modern methods	✕
[4] Increase in adolescent modern contraceptive prevalence rate (CPR)	[4] The percent of sexually active adolescents (15-19) who are currently using (or whose partner is using) a modern contraceptive method. "Currently" is defined as 'at last sex'.	✕ *Positive trend but limited by small sample size (n=60)*
[5] Decrease in proportion of adolescents married	[5A] Percentage of women 10-19 years old who were married or in union before age 18. *[Note: this is the percentage of the* sample *living with spouse before age 18.]*	✕
	[5B] Percentage of women 10-19 years old who were married or in union before age 15. *[Note: this is the percentage of the* sample *living with spouse before age 15.]*	*None reported*

Intervention effects on other program domains

As shown in sections 9 and 10 above on Self-Efficacy and Child Marriage, respectively, results comparing control group data against intervention group data at endline with omnibus chi-square tests indicate intervention effects on adolescents':

- Self-efficacy regarding trying hard can led to improvements in one's life
- Self-efficacy regarding asking questions about puberty to a trusted adult
- Self-efficacy related to refusing unwanted sexual attention from a stranger
- Self-efficacy related to refusing unwanted sexual attention from a relative or someone they knew
- Self-efficacy related to telling an adult about experiences of unwanted sexual attention
- Self-efficacy in condom use with a sexual partner
- Self-efficacy in contraceptive use (asked of girls)
- Bodily autonomy
- Perceived ability to resist negative peer pressure

- Perceived ability to choose whether, when and with whom to marry
- Perceived ability to refuse if their parents wanted them to get married
- Perceived ability to seek help from a trusted adult to prevent an unwanted marriage

As shown in sections 9, 10, 11, and 12 on Gender-Based Violence, Self-Efficacy, Child Marriage, and Female Genital Cutting, respectively, results comparing control group data against intervention group data at endline with omnibus chi-square tests indicate intervention effects on many aspects of the following attitudes and beliefs.

Gender-Based Violence

- Views that forced sex is inappropriate
- Attitudes towards the unacceptable nature of using force/pressure to persuade a girlfriend into having sex
- Attitudes towards there being times when a woman deserves to be beaten by her husband
- Levels of agreement regarding whether women should tolerate violence for the sake of her family
- Attitudes towards victim blaming (of rape survivors)

Self-Efficacy

- Levels of agreement that if they try hard, they can improve their lives
- Levels of agreement that they can ask questions about puberty to a trusted adult
- Self-efficacy related to refusing unwanted sexual attention from a stranger
- Self-efficacy related to refusing unwanted sexual attention from a relative or someone they knew
- Self-efficacy related to telling an adult about experiences of unwanted sexual attention
- Self-efficacy in condom use with a sexual partner
- Self-efficacy in contraceptive use (asked of girls)
- Bodily autonomy
- Ability to resist negative peer pressure

Child Marriage

- Levels of agreement that that early marriage often has harmful consequences for a girl's health, psychological wellbeing and education

- Levels of agreement that early pregnancy often has harmful consequences for a girl's health, psychological wellbeing and education
- Perceived ability to choose whether, when, and with whom to marry
- Perceived ability to refuse if their parents wanted them to get married
- Perceived ability to seek help from a trusted adult to prevent an unwanted marriage

Female Genital Cutting

- Proportion of adolescents who have heard about female circumcision
- Proportion of adolescents agreeing that girls should not be circumcised
- Proportion of adolescents who agree that FGC causes serious physical and mental health complications for girls and women
- Proportion of adolescents stating that FGC should not be continued

We also investigated the role of peer education among the adolescents in the intervention group through supplemental analyses with the monitoring data. When we compared adolescents in the intervention who received peer education to those in the intervention who did not receive peer education, we found that, relative to those who did not receive peer education, adolescents who did receive peer education had improvements in a number of areas. This suggests that peer education may be a fruitful avenue for continued intervention efforts.

- Knowledge that menstruation is a normal biological function
- Hygienically managing reusable menstrual materials by exposing them to the sun
- Correct knowledge about HIV prevention
- Knowledge of where to go for HIV testing, STI treatment, contraception, and condoms
- Perceptions of religious leaders' support for older adolescents (ages 15-19 years) learning about puberty, contraception, and accessing SRH services
- Perceptions of school leaders' support for younger adolescents (ages 10-14 years) learning about SRH services – and for older adolescents (ages 15-19 years) learning about puberty, contraception, and accessing SRH services
- Self-efficacy related to telling an adult about experiences of unwanted sexual attention
- Self-efficacy in condom use with a sexual partner
- Levels of agreement with the statement that early pregnancy often has harmful consequences for a girl's health, psychological wellbeing and education
- Perceived ability to choose whether, when and with whom to marry

- Perceived ability to refuse if their parents wanted them to get married
- Perceived ability to seek help from a trusted adult to prevent an unwanted marriage

Conclusions

Overall ATWA's Year 2 outcome evaluation findings show many significant improvements in SRHR-related attitudes and knowledge among adolescents of all age groups. These changes may be harbingers of future shifts in ATWA long-term outcome measures as adolescents progress in their pubertal development and grow into young adults. Additional rounds of data collection could examine this longitudinal connection between attitudes and knowledge in adolescence on behavior and SRHR outcomes into young adulthood. Further rounds of data collection could also provide insights into whether ATWA's immediate intervention effects on knowledge and behavior are sustained over time.

APPENDICES

Appendix A. ATWA Curriculum for Burkina Faso

[please find attached]

Appendix B. ATWA Curriculum for Mali

[please find attached- B1 - ATWA Curriculum for IS adolescents;
B2 - ATWA Summary of Content for Peer Education Training in Mali]

Appendix C. ATWA Curriculum for Niger

[please find attached – C1 - ATWA Curriculum for IS adolescents;
C2- ATWA Curriculum for Peer Education; C3 - GREAT! Activity Cards for OOS adolescents]

Appendix D. ATWA M&E Framework

[please find attached]

Appendix E. ATWA Survey Instrument

[please find attached]

Appendix F. Data Collection Technical Reports (GRADE Africa)

[please find attached]

Appendix G. DiD Summary Tables

[please find attached]