
SCHOOL-BASED HEALTH PROMOTION PROJECT IN JIGAWA AND KANO STATES, NORTHERN NIGERIA

PROJECT REPORT

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SCHOOL-BASED HEALTH PROMOTION PROJECT IN JIGAWA AND KANO STATES, NORTHERN NIGERIA

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The School-based health promotion project (SHP) generates evidence about the health challenges of adolescents in Northern Nigeria with a view of developing a peer-to-peer after school intervention to improve the health and wellbeing of adolescents in the region. Specifically, the SHP is focusing on influencing policies, research, and interventions around reproductive, mental, and physical health. SHP is led by the University of Hull, UK (Prof. Lesley Smith) with Family and Youth Health Initiative (FAYOHI) Nigeria (Dr. Ahmed Sarki), and in partnership with Aga Khan University, and International Network for Advancing Science and Policy (INASP). Our local partners include Jigawa and Kano State Governments through the Ministries of Health, Education & Women Affairs; Community-based Organisations; NGOs (through DfID funded projects) in Kano and Jigawa States; Traditional and Religious Leaders; Researchers based/working in the region; and School Directors, teachers, and pupils.



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Table of Contents

ACKNOWLEDGEMENT	iv
ABBREVIATIONS/ACRONYMS.....	vi
INTRODUCTION.....	1
WHY ADOLESCENT HEALTH AND WHY SHOULD WE INVEST IN THEM?.....	1
ADOLESCENTS’ SEXUAL AND REPRODUCTIVE HEALTH CHALLENGES	2
ADOLESCENTS LEVEL OF PHYSICAL ACTIVITY AND UNMET NUTRITIONAL NEEDS IN NIGERIA	5
ADOLESCENCE MENTAL HEALTH, SUBSTANCE USE AND VIOLENCE IN NIGERIA	6
WHAT ARE WE DOING TO ADDRESS THESE CHALLENGES?	8
Why is this project important?.....	8
Project Objectives.....	9
Project Sites.....	9
Jigawa State.....	9
Kano State	10
WHAT ARE THE ACTIVITIES WE CARRIED OUT IN THIS PROJECT?.....	10
Phase 1: Stakeholder engagement and partnership building (to address objective 1).....	10
Stakeholder Engagement Activities.....	10
Research Symposium and Partnership Building.....	11
Phase 2: Primary research study (to address objective 2).....	14
Phase 3: Secondary Analysis of Nigerian Demographic and Health Survey data 2003-2008 (to address objective 3)	15
WHAT DID WE FIND (RESULTS) FROM ALL THESE ACTIVITIES?.....	15
Phase 1: Stakeholder Engagement and Partnership Building.....	15
Phase 2 - School pupil questionnaire survey and focus groups	16
School pupil characteristics – Questionnaire.....	16
School pupil characteristics – Focus groups.....	18
Adolescents health challenges/risk, knowledge, attitudes and health seeking behaviours	18
Physical activity among adolescent boys and girls.....	22
Dietary behaviours of adolescents.....	24
Prevalence of mental health issues among adolescents.....	25
Violence/abuse in school was common among adolescent boys and girls.....	26
Reproductive health practices, knowledge and challenges among adolescents.....	27
Health seeking behaviour and barriers to accessing health information/services	31
Adolescents opinion about school club’s and peer to peer information sharing	31
OVERARCHING KEY FINDINGS.....	32
Next Steps: Phase 4: Co-production of the intervention.....	35

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ABBREVIATIONS/ACRONYMS

AAG – Adolescent Advisory Group

CDC – Centres for Disease Control and Prevention

CIA World Factbook – Central Intelligence Agency World Factbook

ENGINE2 - Educating Nigerian Girls in New Enterprises Phase II

FAYOHI – Family and Youth Health Initiative

FGDs – Focus Group Discussions

GAD-7 - Generalized Anxiety Disorder Questionnaire

GDP – Gross Domestic Product

HIV – Human Immunodeficiency Virus

HWA - Health for the World's Adolescents

ICDDR,B - International Centre for Diarrhoeal Disease Research Bangladesh

INASP - International Network for Advancing Science and Policy

KECCHOD - Kano Emirate Council Committee on Health and Community Development

LMICs – Low- and Middle-Income Countries

MOOC - Massive Open Online Course

NACA - Nigeria AIDS Control Agency

NCDs – Non-communicable Diseases

NDHS – Nigerian Demographic and Health Surveys

NDLEA - National Drug Law Enforcement Agency

NGOs – Non-Governmental Organisations

OECD - Organisation for Economic Cooperation and Development

PAQ-A - Physical Activity Questionnaire for Adolescents

PE – Physical Exercise

PHQ-9 - Patient Health Questionnaire

PMA - Performance Monitoring and Accountability

SDGs – Sustainable Development Goals

SHP – School-based Health Promotion

SCAF – Sickle Cell Aid Foundation

STI – Sexually Transmitted Infection

SS – Senior Secondary

TFR – Total Fertility Rate

UK – United Kingdom

WHO – World Health Organisation

INTRODUCTION

Adolescence is an important stage of human development laying the foundations of good health in adulthood [1]. The World Health Organisation [WHO] defines adolescents as young people between the ages of 10 to 19 years [1]. Adolescents experience rapid cognitive, physical, and psychosocial growth, during which many health behaviour patterns are established such as diet and exercise behaviours, smoking and substance use and sexual activity [1]. These health risk and health protecting behaviours are linked to injuries and accidents, poor academic attainment, mental health disorders, sexually transmitted diseases and unintended pregnancy. They also influence the development of long-term health outcomes such as cancer and cardiovascular disease. In this report, we summarise work we carried out to explore the key *health* behaviours and knowledge amongst adolescents in Jigawa and Kano states, and propose actions to accelerate improvement in adolescents' health in Northern Nigeria.

WHY ADOLESCENT HEALTH AND WHY SHOULD WE INVEST IN THEM?

Investment in the health and well-being of the planet's largest generation of adolescents will shape both the future of the world's health and the achievement of the United Nations Sustainable Development Goals (SDGs). Specifically, SDG 1 – poverty reduction; SDG 2 – Zero hunger; SDG 3 – good health and wellbeing; SDG 4 – quality education; SDG 5 – gender equality; SDG 8 – economic growth; SDG 10 – reduction of inequalities; and SDG 11 – sustainable cities and communities [2]. According to the CIA World Factbook,

“Adolescents are the greatest resource for a society to thrive

Investment in adolescents bring enormous benefits” (WHO, 2019)

Nigeria has an estimated population of 214 million people (July 2020 estimate) and the majority of the population (41%) is between ages 0–14 years, depicting a young population, high fertility rate and dependency [3]. In fact, Nigeria has the highest population of youth aged between 10–24 years in the entire African continent [4]. It also implies a large population of adolescents entering the labour force in the near future [5]. Therefore, investing in this young

Healthy behaviours in adolescence make healthy adults

demography can bring significant health benefits for adolescents which can reduce present and future health costs and enhance social capital. Furthermore, it is important to invest in adolescent health in Northern Nigeria specifically due to the unique phase of human development for young people but also because of the particular disease and injury burdens that are borne by adolescent populations in Northern Nigeria.

ADOLESCENTS' SEXUAL AND REPRODUCTIVE HEALTH CHALLENGES

In low- and middle-income countries (LMICs), about 12 million 15-19 year-old girls, and 700,000 below 15 years of age give birth each year [6]. Further, a survey of 144 high and low-income countries highlighted that in most countries, a higher proportion of poorer, less educated adolescents give birth than their more affluent, educated counterparts [7].

Early motherhood disrupts school attendance [7], predicating low social and economic status and disparities that affect future livelihoods. Adolescent mothers face higher risks of adverse pregnancy outcomes than older women do [8]. Furthermore, babies born to adolescent mothers face higher risks of low birth weight, preterm delivery and severe neonatal conditions [9]. In sum, complications during pregnancy and childbirth are the leading cause of death for 15–19-year-old girls globally and is responsible for the increase in maternal mortality in most countries [9].

About 12 million girls between 15-19 years, and 700,000 girls below 15 years give birth each year.

Pregnancy and childbirth complications are the leading causes of deaths among 15-19 years old girls.

Nigeria still records high maternal death and appears among the top four highest maternity ratio in the world.

In the last three decades, many countries have successfully reduced their maternal mortality levels, contributing to a decline in global maternal deaths [10]. However, in sub-Saharan Africa, the levels of maternal mortality have stagnated and in some countries such as Nigeria, recent estimates show that maternal deaths have increased [11-12]. Nigeria has the fourth highest maternal mortality ratio (MMR) in the world with 917 deaths per 100,000 live births compared with 534 per 100,000 for Sub-Saharan Africa and 230 per 100,000 for low-and middle-income countries as a whole [10]. Maternal mortality varies significantly between regions in Nigeria with the Northern regions having the highest number of maternal deaths [11-12].

Nigeria has the fourth highest maternal mortality ratio (MMR) in the world with 917 deaths per 100,000 live births compared with 534 per 100,000 for Sub-Saharan Africa.

Limited access to health literacy information, access to contraceptives, and delay in seeking health treatment are some of the contributing factors to high MMR.

Factors such as rapid population growth (with a youth bulge), socioeconomic status (education and wealth), high fertility rates, access to health literacy information, access to contraception, delay in seeking treatment, traditional values and culture are among

the determinants of the bleak maternal health indices in the country [4,11,12]. In 2015, total fertility rate (TFR) in Nigeria was 5.5 births per woman but increased in 2016 to 5.8 [10], with Jigawa state having the highest TFR at 8.5 followed by Kano and Kebbi states with a TFR of 7.7 each [4].

In Nigeria, Jigawa state has the highest Total Fertility Rate of 8.5 followed by Kano and Kebbi states of 7.7 each.

Young girls experience a high level of unintended pregnancy leading to unsafe abortion

Another major reproductive health issue facing adolescents is termination of pregnancy (abortion), for example, there are about 10 million unintended pregnancies and 5.6 million abortions annually among girls aged 15-19 in LMICs [6,9]. Of these abortions, about 70% are unsafe, leading to maternal mortality,

About 10 million unintended pregnancies and 5.6 million abortions annually among girls aged 15-19 in LMICs

morbidity and health problems in adulthood [9]. Adolescents in Sub-Saharan Africa bear the most significant burden of all unsafe abortions among young people aged 15-19 years globally [13]. In Nigeria, barriers to contraception access and utilization, limited access to

sexual and reproductive health information contribute to the increased proportion of unintended pregnancies and unsafe abortions [14]. Induced abortion is illegal in Nigeria, except where the life of the mother is at risk. Yet, pregnancy terminations are common, and are often performed covertly or by unskilled providers and under unsafe conditions [14].

Unmet need for menstrual hygiene still persists amongst adolescent girls in Nigeria.

Inadequate menstrual hygiene is another important challenge affecting adolescent girls [15-16]. To this end, inaccurate and incomplete information about menstrual physiology are some of the factors that influence hygiene practices and more broadly sexual and reproductive health practices among adolescents [16-17].

In Nigeria, studies revealed that only about half of the adolescent girls surveyed had premenarcheal information, which resulted in inappropriate menstrual

There is unmet need for menstrual hygiene amongst adolescent girls especially in North West Nigeria.

experiences and poorer menstrual hygiene practice in many of the girls [16,18-21]. In addition, there is unmet need for menstrual hygiene amongst adolescent girls especially in North Western Nigeria. For example preliminary results from the Performance Monitoring and Accountability (PMA 2020) survey conducted in Kaduna state showed that about 63% had unmet need for menstrual health facilities such as clean materials and facilities, pain medication, and places to dispose of used products for proper menstrual hygiene [22].

Adolescents' boys and girls are devastated by the scourge of HIV/AIDS in Nigeria

With respect to sexual health, 2014 WHO *Health for the World's Adolescents* (HWA) reported that the prevalence of HIV is increasing among adolescents and it is currently the second leading cause of death among adolescents globally [23]. This increase is sharp in the African region and it is occurring at a time when HIV-related deaths are declining in other population age groups [23-24]. Data from the UNAIDS posits that Nigeria follows South Africa as having the second largest HIV burden in the world [25]. In addition, the Nigeria AIDS Control Agency (NACA) estimates the prevalence of HIV for young people aged 15 to 24 years at 4.2% [26]. Recent estimates put the number of adolescents- aged 10-19 years- living with AIDS to be 160,000. National data also suggests that 40 percent of all reported new cases of HIV occur in young persons aged 15 to 24 years and is the highest compared to other age groups [27]. Furthermore, the South-South geopolitical zone has the highest prevalence followed by the North-West and North-East geopolitical zones [28]. In addition, there are low levels of HIV knowledge among adolescents across Nigeria. For instance, a survey of about 1800 young adolescents aged 10-14 years in Akwa Ibom state, South-South Nigeria found a significant low level of comprehensive HIV knowledge among the participants [29]. The authors highlighted a gap in the provision of comprehensive, functional sexuality education, including HIV at the family- and school-levels. Certainly, such evidence underscores the need for sexual and reproductive literacy among adolescents in the country.

About 4.2% of young people aged 15-24 years are living with HIV in Nigeria and 40% of all reported new cases of HIV occur in young persons aged 15 to 24 years and is the highest compared to other age groups

ADOLESCENTS' LEVEL OF PHYSICAL ACTIVITY AND UNMET NUTRITIONAL NEEDS IN NIGERIA

The HWA report [23] describes a broad range of health needs of people aged 10–19 years from their own perspectives. The report presents a global overview of adolescents' health and health-related behaviours, including, trends, the determinants that influence their health and behaviours. The HWA report highlighted that in countries with survey data, less than 25% of adolescents met recommended guidelines for physical activity and as many as one in every three is obese in some countries [23]. This portends a strong risk for cardiovascular diseases and other chronic illnesses in adulthood. Physical inactivity is an emerging public health problem in Nigeria as the incidence of death due to non-communicable diseases (NCDs) attributed to physical inactivity are rising in the country [30-31].

A survey conducted with 1,006 adolescents in secondary schools found that only about 37% of the Nigerian adolescents fulfilled the recommended guidelines of physical activity per day, and that males were more likely to meet the recommended guidelines for physical activity compared to females [30]. Similarly, the 2018 Nigerian Report Card on Physical Activity for Children and Youth [31] found that overall only about 30-52% of children are sufficiently physically active in Nigeria. This clearly presents the need for concerted efforts in increasing physical activity among children and adolescents in the country.

Only about 37% of adolescents in Nigerian fulfilled the recommended guidelines of physical activity per day.

About 30-52% of children are sufficiently physically active in Nigeria

Unmet nutritional needs contribute to adolescent's ill health and development

Certainly, nutritional needs during adolescence increase due to exacerbated growth rate and changes in body composition associated with puberty [32-34]. The dramatic increase in energy and nutrient requirements coincides with other factors that may affect adolescents' nutritional status. These factors, including the quest for independence and acceptance by peers, increased mobility, which contribute to the erratic and unhealthy eating behaviours commonly seen during adolescence [32, 35]. Proper/optimal nutrition can play a role in the prevention of several chronic diseases, including obesity, coronary heart disease, cancer, stroke, and type 2 diabetes [36-42]. Therefore, improved/optimal nutrition can help prevent diet-related chronic diseases especially in LMICs. A systematic review comprising 288 studies found that adolescent girls in low- and middle-income countries (LMIC) have

poorer nutritional profiles compared to their counterparts in high-income countries (HICs), including greater risks for undernutrition, overweight/obesity, and micronutrient deficiencies [43]. In many

Adolescent girls in low- and middle-income countries (LMIC) have poorer nutritional profiles compared to their counterparts in high-income countries

LMICs, the prevalence of overweight/obesity surpasses that of underweight, aligning with the nutrition transition that is now sweeping the globe [43]. Additionally, given the high number of pregnancies among adolescent girls, combatting malnutrition and anaemia is important to improve reproductive and birth outcomes [43].

ADOLESCENCE MENTAL HEALTH, SUBSTANCE USE AND VIOLENCE IN NIGERIA

Mental health is another emerging public health priority among adolescents in the HWA report [23]. Globally, depression is the top cause of illness and disability among adolescents, while suicide is the third leading cause of death during adolescence [23]. Furthermore, as many as half of all mental health disorders start by age 14 years, which often goes unrecognized and untreated with serious consequences for mental health throughout life [23]. In Nigeria, mental health disorders among adolescents are frequently unrecognized or misdiagnosed consequently not managed appropriately [44-45]. Although, there is a growing body of literature on mental

There is dearth of information on mental health from Northern Nigeria and generally mental health literacy was profoundly low amongst the adolescents highlighting an urgent need to increase mental health awareness in Nigeria

health of adolescents in Nigeria, the majority of studies have been conducted among in-school adolescents and in the Southern regions of the country [44-47]. These studies report the prevalence of depression ranging from 7.4% to 21%, and that it is more prevalent among females and linked with low self-esteem, peer and family relationships [44-47]. Overall, there is dearth of research on mental health from Northern Nigeria and furthermore mental health literacy has been reported to be profoundly low amongst adolescents highlighting an urgent need to increase mental health awareness in Nigeria.

Substance use is taking a toll among adolescents in Nigeria

The WHO highlighted substance use as another major public health issue among adolescents globally [48]. Intriguingly, alcohol, drug and tobacco use among young people has been widely reported in Nigeria [49]. The National Drug Law Enforcement Agency (NDLEA) in 2011 collected substance use and abuse data from schools, records of patients admitted at mental health institutions for drug-related problems and interviewed persons arrested for drug offences. The result showed that youths constituted a high-risk group for substance use. In addition, the data revealed that peer-influence in schools and communities account for about 90% of the source of influence of the use of various psychoactive substances [49]. Similarly, a study conducted among school-going adolescents in Ebonyi state South Eastern Nigeria found that one-third of the adolescents were abusing substances [50] with alcohol being the most commonly abused substance. In Kano state, a community study found that 50-60% of the adolescents were either using substances or abusing them [51]. Poor economic conditions, unemployment, political actors, ethnic or religious conflicts and inadequate youth empowerment programs are the main drivers of substance use in Nigeria [50-51]. In particular, Kano State is one of the worst affected states in the country leading to incessant crimes and increased violence in the state [52].

About 50-60% of adolescents in Kano State are either using substances or abusing them

Adolescents are predisposed to multiple forms of violence leading to premature death, injury, negative health outcomes and disabilities.

Another important social issue of significant public importance among adolescents is violence. Globally, adolescents are directly or indirectly predisposed to multiple forms of violence including physical, emotional, and sexual across multiple settings [23]. In Nigeria, there has been an increase in the occurrence of violence in recent years ranging from insurgency and kidnapping in the North East regions to widespread sexual violence [54]. The Organisation for Economic Cooperation and Development (OECD) (2011) highlighted that youth violence contributes to global burden of premature death, imprisonments, injury and disabilities among youths. The OECD stressed that

In a study conducted with over 1,360 adolescents in South West Nigeria, about 98% of the participants experience at least one form of violence. Physical violence was the most common (94.4%), followed by psychological (77.6%) and sexual violence (34.9%).

youth violence has potential lifelong impact on behavioural, psychological and social functioning of victims, families, friends and communities [55]. In a study conducted with over 1,360 adolescents in South West Nigeria, the findings suggest that 98% of the participants' experience at least one of the three forms of violence (physical, psychological or social). In particular, physical violence was the most occurring form of violence (94.4%), followed by psychological (77.6%) and sexual violence (34.9%) [56]. In all, the authors suggested comprehensive interventions targeting in-school adolescents, teachers, and parents as one of the strategies for addressing violence.

WHAT ARE WE DOING TO ADDRESS THESE CHALLENGES?

In order to address these challenges, we are developing a school-based health promotion project (SHP) which was piloted in Jigawa and Kano states 2018-2019. This project is a collaboration between Family and Youth Health Initiative (FAYOHI- a public health non-governmental organization operating in Northern Nigeria) and Professor Lesley Smith (Professor of Women's Public Health) based at the University of Hull, UK. The overall aim of the SHP is to understand health awareness, beliefs and behaviours of adolescents attending secondary schools in Jigawa and Kano States, Nigeria with a view to co-produce a culturally sensitive health literacy/health promotion intervention for adolescents in Northern Nigeria. Through this project, we envisage the development of a cost-effective and sustainable health literacy intervention in Jigawa and Kano States that could be scaled-up to other states within Northern Nigeria. In addition, we anticipate that co-designing an intervention with relevant stakeholder input ensures the planned intervention will be culturally relevant and therefore acceptable to pupils, parents, teachers, community leaders, practitioners and policy makers maximising the chance of success.

Why is this project important?

The premise of this project is to target adolescents aged 10-19 years early on and equip them with relevant and culturally appropriate health literacy as they transition into adulthood and involve the thematic areas highlighted during prior stakeholder engagements during November to December 2018. The thematic topics included drug addiction and substance misuse, rape/sexual violence, nutrition, and girl child education. We hypothesize that an informed adolescent is more likely to lead a healthy life and have cues to action to health in adulthood.

This project aligns with priorities highlighted in several national and state policies such as the National Policy on the Health and Development of Adolescent and Young People in Nigeria [57] and the 'Save

One Million Lives Initiative' that aims to promote health and development of young people 10 -24 years in Nigeria. Key areas for intervention include sexual and reproductive health and rights, nutrition, mental health, and substance use. Furthermore, other agencies working in the country have identified adolescent health as a priority area for making health gains [58].

Project Objectives

Objective 1: To understand the perspectives and opinions of a wide range of stakeholders on the key health challenges faced by adolescents in North West Nigeria.

Objective 2: To determine the health behaviours, attitudes and knowledge of adolescents attending four large single-sex schools in Jigawa and Kano states.

Objective 3: To examine the trends and predictors of pregnancy termination in Nigeria using the 2003- 2018 Nigerian Demographic Health Surveys.

Project Sites

Both Jigawa and Kano states are in the North-West geopolitical zone of Nigeria. A region characterized by poor health indices, low socioeconomic status, and the highest number of deaths and diseases compared with the Southern regions of Nigeria [12, 59]. As highlighted elsewhere in this report, there are many determinants of poor maternal health outcomes in both Jigawa and Kano states. Similarly, other societal norms such as early marriage and child marriage are common in the North-West region where 54% of girls aged 15-24 were married by age 15, and 81% by age 18 with 16% having given birth by age 15 and 36% by age 19 [12].

Jigawa State

Jigawa is a predominantly rural state with a population of about 5.8 million people (2016 estimate) [60].

Agriculture is the mainstay of the state's economy and GDP per capita income is around US\$600 per year [27].

Jigawa state is one of the states with the worst human capital attainment and poorest health outcomes in Nigeria. The maternal mortality ratio is amongst the

Jigawa state has one of the highest maternal mortality ratios in Nigeria with an estimated 1,100 deaths per 100,000 live births.

highest in Nigeria with an estimated 1,100 deaths per 100,000 live births [61]. It has the third lowest literacy rate (11%) compared to the national average (53%), 87% poverty rate, and among the top four states with the highest percentage of women who have never attended school [62].

Kano State

Kano State has an estimated population of 13 million people (2016 estimate) is ranked the sixth largest state in Nigeria by GDP, agriculture and commerce are the main sources of revenue to the economy [60]. Maternal mortality was estimated at 1,025 deaths per 100,000 live births and under-five mortality is estimated at 103 deaths per 1000 live births (among the highest in Nigeria) [63]. Poor access to emergency obstetric services is cited as a contributory factor to the increasing maternal and child deaths in the state. Additionally, substance abuse among adolescents in Kano is one of the highest in Nigeria [52]. The issue of substance abuse is a menace and a major public health issue that requires cost-effective and sustainable interventions.

In Kano state, maternal mortality was estimated at 1025 deaths per 100,000 live births and under-five mortality is estimated at 103 deaths per 1000 live births (among the highest in Nigeria)

In relation to adolescent health, there are a number of challenges to achieving Sustainable Development SDG 3 (good health and wellbeing) in the region including double burden of diseases (communicable and non-communicable diseases), weak health infrastructure, low literacy, large distances to-and-from health facilities, deeply entrenched traditional and cultural beliefs [11,12,59]. A number of existing policies exist and have limited impact due to poor implementation in Northern states. This supports the need for co-produced interventions. Therefore, improving health outcomes among adolescents in both Jigawa and Kano states require investments in age- and culturally-appropriate sexual and reproductive health education, equitable access to sexual and reproductive health services, development of life-skills, and provision of supportive and safe spaces.

WHAT ARE THE ACTIVITIES WE CARRIED OUT IN THIS PROJECT?

Phase 1: Stakeholder engagement and partnership building (to address objective 1) Stakeholder Engagement Activities.

The project team carried out extensive stakeholder engagement in Jigawa state during October to November 2018. The stakeholders comprised policy makers – specifically the leadership and principal officers of the Jigawa state Ministries of Health and Education; selected community-based organisations operating in the state; school directors, teachers, and pupils. The objectives of the engagement activities were to identify and understand the main health challenges for adolescents in the state and to discuss the feasibility of the proposed co-produced intervention around health literacy for adolescents.

Research Symposium and Partnership Building

We held a research symposium in Kano State during April 2019 with the theme ***‘Promoting Adolescent Health in Northern Nigeria: Evolving Challenges and Opportunities’***. The symposium brought together early career researchers from Northern Nigeria, policy makers from Jigawa and Kano State, Kano Emirate Council Committee on Health and Community Development (KECCHOD), representatives of various NGOs, representatives from the Department of Community Medicine, Aminu Kano Teaching Hospital, Bayero University Kano, youths, adolescents, school pupils, and members of the public.

The symposium comprised a presentation by the project team led by Professor Lesley Smith (sharing the project scope, aim, objectives, and future direction) followed by presentations from five early career researchers from the Aminu Kano Teaching Hospital, Sickle Cell Aid Foundation (SCAF), and Bayero University Kano.

There was an interactive panel discussion during the symposium. The panellist were carefully selected to represent policy makers (the Honourable Commissioner of Health for Jigawa State); traditional leaders (Alhaji Isiyaku U. Tofa Dan’adalan Kano & Alhaji Maje Abbas Dalhatu ‘Yan Dakan Kano); a school director; and members of the development sector, specifically project leads DfID-funded Educating Nigerian Girls in New Enterprises Phase II (ENGINE 2) and Maternal, Newborn and Child Health 2 (MNCH2) projects in Northern Nigeria.

We held breakout sessions that entailed capacity-building sessions on communicating research evidence, evidence-based healthcare, and how policy makers can utilize locally generated evidence led by Prof. Lesley Smith, Dr. Ahmed Sarki, and Dr. Franklin Onukwugha respectively.

The symposium was the first of its kind in the region to bring together key stakeholders under one roof to address adolescent health challenges in Northern Nigeria. We also used the platform to build partnerships with relevant stakeholders in the region (see Table 1).

Table 1: Stakeholder Analysis Matrix

Stakeholder(s)	Contact Person	Impact <i>How much does the project impact them? (Low, Medium High)</i>	Influence <i>How much influence do they have on the project? (Low, Medium High)</i>	Stakeholder's Interest in the project	Stakeholders contribution to the project	Actions of the stakeholder that could jeopardize the project	Strategy for stakeholder engagement
State Ministries of Health, Education, and Women Affairs		High	High	Improvement of services to cater for adolescents health and wellbeing	Involvement in the project steering committee, financial and human resource support, and implementation of reforms in line with findings	Insufficient cooperation	Project steering committee meetings and consultations
Community Development, Community-based and Grassroots organisations		High	High	Improved access to health services, inclusion in future strategic healthcare plans, improved outcomes for patients	Representation of various groups, active participation in the project	Insufficient cooperation	Project steering committee meetings
Community Leaders (Religious and Traditional), parents/parent groups, and youth representatives		High	High	Improved health and wellbeing for their respective constituents and empowerment	Mobilising and encouraging their constituents to participate in the project	Refusing to be involved in the project	Advocacy visits and periodic meetings

Stakeholder(s)	Contact Person	Impact <i>How much does the project impact them? (Low, Medium High)</i>	Influence <i>How much influence do they have on the project? (Low, Medium High)</i>	Stakeholder's Interest in the project	Stakeholders contribution to the project	Actions of the stakeholder that could jeopardize the project	Strategy for stakeholder engagement
Funding Partners		High	High	Project aligning with their strategic objective and fulfilling outcomes	Mobilising funds to support the overall project or sub-projects	Insufficient funding	Project Steering Committee meetings
Multilateral agencies and organisations		High	High	Alignment with their overall objectives in the region specifically towards achieving the UN SDGs	Sharing best practices and contributing resources human or financial to undertake parts of the project or sub-projects	Limited cooperation	Project Steering Committee meetings and consultations
Schools and other Institutions of learning		High	High	Improving the health and wellbeing of pupils	Involvement in steering committee, mobilising students, conducting and implementation of research outcomes	Limited cooperation	Project Steering Committee meetings
Media		Low	High	Getting good and bad stories	Disseminating outcomes of the projects and printing stories that support reforms	Printing stories that oppose and undermine the outcomes of the project	Periodic press briefings

Phase 2: Primary research study (to address objective 2)

The second phase of our activities entailed a mixed-methods study comprising 1,066 adolescents aged 16-19 years attending four secondary schools (two each in Jigawa and Kano States) conducted during July to August 2019. Selection of the schools was determined by schools with representativeness of pupils within each state. The objective was to understand health awareness, beliefs and behaviours of adolescents in school in the region.

We adopted a sequential explanatory approach [64] to inform our data collection and analysis. The sequential explanatory approach involved two stages, the first being a quantitative component where a questionnaire was used to gather data on sociodemographic information, physical activity, hygiene, menstrual hygiene, mental health, substance abuse, tobacco smoking, unintentional violence/injury, and some measurements (anthropometrics, blood pressure, and resting heart rate). We adopted and modified the following questionnaires:

- a) Global Schools Health Survey developed by the World Health Organization (WHO) and the United States of America Centres for Disease Control and Prevention (CDC);
- b) Physical Activity Questionnaire for Adolescents (PAQ-A) developed by Professor Kent Kowalski and colleagues, University of Saskatchewan, Canada;
- c) Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder Questionnaire (GAD-7) developed by Professor Robert L. Spitzer and colleagues at Pfizer Inc.;
- d) Menstrual Hygiene Questionnaire developed by Mahbub-UI Alam and colleagues at International Centre for Diarrhoeal Disease Research Bangladesh (ICDDR,B).

Stage 2 of the sequential approach involved a series of focus group discussions (FGDs) to collect qualitative data. The FGDs explored adolescent's health literacy/health seeking behaviours, and their understanding of some of the public health challenges they face in greater detail.

Earlier stakeholder engagement activities indicated which health topics we could and could not address with adolescents in the project sites. One of the possible explanations for this restriction is the deeply entrenched traditional and cultural beliefs in the Northern Nigerian region [35]. For example, discussing sexual and reproductive health with adolescents was considered inappropriate and not permitted.

The following Institutional Review Boards approved the pilot study:

1. Research Ethics Committee, Faculty of Health Sciences, University of Hull, UK.
2. National Health Research Ethics Committee, Federal Ministry of Health, Nigeria.
3. Operational Research Advisory Committee, Jigawa State Ministry of Health.
4. Health Research Ethics Committee, Ministry of Health, Kano State.
5. Jigawa State Ministry of Education, Science, and Technology.

Phase 3: Secondary Analysis of Nigerian Demographic and Health Survey data 2003-2008 (to address objective 3)

The third and final phase of our work involved a secondary analysis of the Nigerian Demographic and Health Survey (NDHS) data from 2003-2008 to augment the mixed-methods study. Specifically, we examined the trends in and predictors of pregnancy termination among young women aged 15-24 years in Nigeria using multi-level modelling techniques. The aim of the secondary analysis was to determine trends in pregnancy termination and ascertain wider determinants of pregnancy termination including contextual community and state-level factors.

WHAT DID WE FIND (RESULTS) FROM ALL THESE ACTIVITIES?

In this section, we present the results from the three phases of the project. First, a summary of the stakeholder engagement and partnership building, followed by a summary of the empirical research (school pupils' questionnaire survey and focus groups), and the findings of the secondary data analysis.

Phase 1: Stakeholder Engagement and Partnership Building

Key Findings

- The initial stakeholder engagements revealed that there are few interventions targeting adolescent health, particularly in Jigawa state.
- Stakeholders highlighted that drug addiction and substance misuse, poor dietary patterns, maternal deaths and illnesses, mental health, rape/sexual violence, poor personal and menstrual hygiene were among the prominent health challenges facing adolescents in Jigawa and Kano states.

- We found that adolescents are keen on having reliable sources of health information within their immediate environments. At present, there is dearth of platforms or avenues for sources of health information readily accessible and tailored to the target audience – adolescents in North Nigeria.
- There is growing appetite for multi-stakeholder partnerships to address the health challenges facing adolescents in Jigawa and Kano states.
- Selected stakeholders highlighted the need for the region (Northerners) to recognise adolescent health and social issues that are important to youths themselves and confront some of the culturally sensitive issues through dialogue and continuous engagements.
- Stakeholders unanimously opined that the proposed ‘school-based health promotion project’ can make a significant contribution towards addressing some of the health challenges facing adolescents in Jigawa and Kano states.

Phase 2 - School pupil questionnaire survey and focus groups

School pupil characteristics – Questionnaire

A total of 4,781 pupils were randomly selected of whom 1,079 pupils gave consent and completed the online questionnaire. Each of the four schools contributed equally to the sample with approximately 25% each. The gender distribution of the pupils was 50% female and 50% male (Table 2). The majority (97%) of the sample were 15-18 year-olds and identified themselves as Hausa or Hausa/Fulani ethnicity (~98%).

Table 2: Characteristics of school pupils taking part in the questionnaire survey (n=1,079)

	Female n (%)	Male n (%)	Overall n (%)
<i>Gender</i>	542 (50.2)	537 (49.8)	1,079
<i>School</i>			
<i>Kafin Hausa (Jigawa)</i>	na	271 (25)	
<i>Taura (Jigawa)</i>	261 (24)	na	
<i>Dawaki (Kano)</i>	na	266 (25)	
<i>Dala (Kano)</i>	281 (26)	na	
<i>Age group (years)</i>			
<i>12-14</i>	2 (0.4)	32 (5.9)	34 (3.2)
<i>15-16</i>	281 (52.3)	344 (63.5)	625 (57.9)
<i>17-18</i>	238 (44.3)	163 (30.1)	401 (37.2)
<i>> 18</i>	16 (3.0)	3 (0.6)	19 (1.8)
<i>School year</i>			
<i>SS1</i>	236 (43.9)	255 (47.0)	491 (45.5)
<i>SS2</i>	301 (56.1)	287 (53.0)	588 (54.5)
<i>Ethnicity</i>			
<i>Bade</i>	0	2 (0.2)	2 (0.2)
<i>Ebira</i>	0	1 (0.1)	1 (0.1)

<i>Fulani</i>	6 (1.1)	23 (4.2)	29 (2.7)
<i>Hausa</i>	526 (98)	500 (92.3)	1026 (95.1)
<i>Hausa/Fulani</i>	4 (0.7)	3 (0.6)	7 (0.6)
<i>Igala</i>	0	2 (0.4)	2 (0.2)
<i>Kanuri</i>	0	6 (0.6)	6 (0.6)
<i>Manga</i>	1 (0.2)	2 (0.2)	2 (0.2)
<i>Shuwa Arab</i>	0	1 (0.1)	1 (0.1)
<i>Yoruba</i>	0	2 (0.2)	2 (0.2)
<i>State of origin</i>			
<i>Jigawa</i>	267 (49.7)	259 (47.8)	526 (48.7)
<i>Kaduna</i>	0	8 (0.7)	8 (0.7)
<i>Kano</i>	270 (50.3)	270 (49.8)	540 (50.0)
<i>Katsina</i>	0	3 (0.3)	3 (0.3)
<i>Kogi</i>	0	1 (0.1)	1 (0.1)
<i>Yobe</i>	0	1 (0.1)	1 (0.1)

Almost all pupils were from Jigawa or Kano states, but approximately 1% were from the neighbouring states of Kaduna, Katsina, Kogi and Yobe. Although pupils from only four schools took part in the survey and focus groups, Figure 1 shows that the pupils were from 26 local government areas indicating good representation of pupils across Jigawa and Kano states.

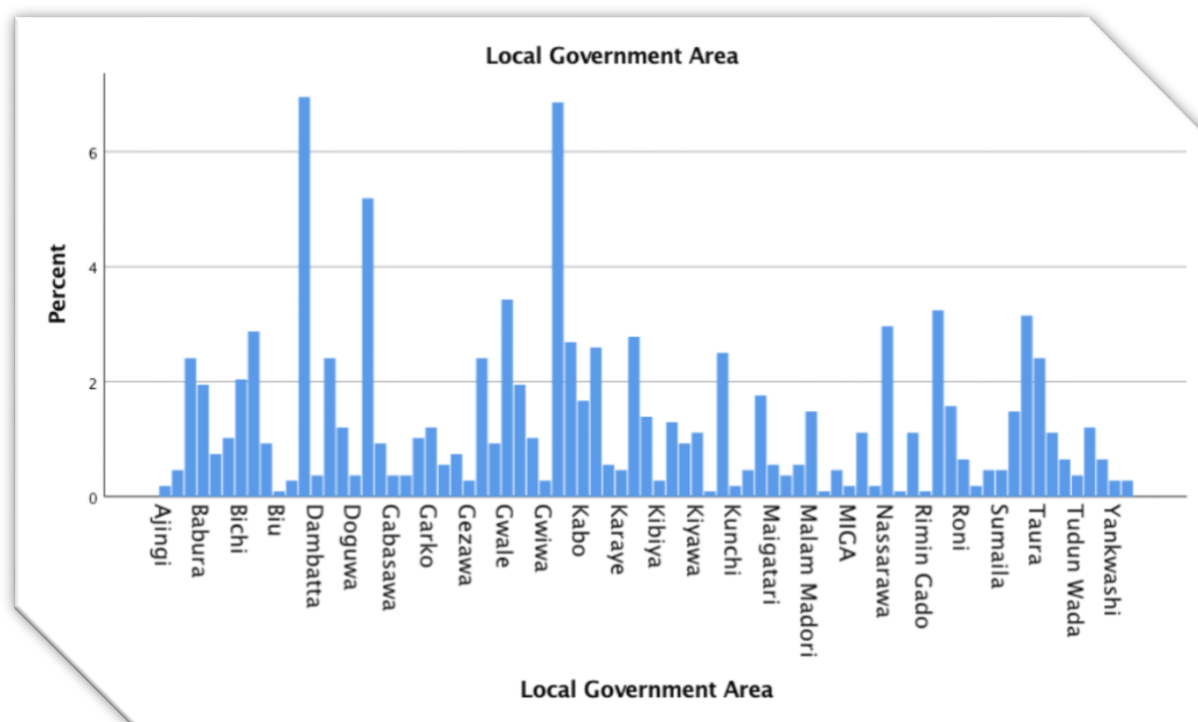


Figure 1: Geographic location of home residence of pupils

School pupil characteristics – Focus groups

Altogether, eight FGDs were conducted both in Jigawa and Kano States. A total of Sixty-four pupils (8 per class) were purposively recruited across four secondary schools (two male and two female schools). Adolescents in this study were stratified based on gender (male and female) and class (SS1 and SS2). The FGDs were conducted in Hausa and later transcribed to English and analysed thematically.

Adolescents health challenges/risk, knowledge, attitudes and health seeking behaviours

One of the key objectives of the project was to determine the health risk behaviours amongst secondary school pupils in two Jigawa and two Kano state schools. The survey questionnaire included questions on substance use (tobacco smoking and illicit drug use); physical activity and diet.

Substance use among adolescents

Table 2 shows results for the proportions of pupils reporting substance use. Overall, smoking intentions were infrequently reported by both boys and girls, with 99.4% of boys and 100% of girls reporting definitely or probably not intending to smoke in the next 12 months. Responses were similar regarding pupils' intentions if they were offered a cigarette by a peer or friend.

Higher proportion of boys are using illicit drugs than girls

Compared with smoking intentions, use of an illicit drug was reported by a higher proportion of boys and girls with some striking differences between the genders. Lifetime use of a codeine-based syrup was reported by 2.5% boys and 4.3% girls; however, a prescription drug without a prescription was reported by 13.2% boys and 35.9% girls. For the boys only, lifetime use of an injected drug and the 'date rape drug' rafinol was reported by 1.1% and 1.3%, respectively.

Use of prescription drug without a prescription was reported higher among girls (35.9%) than boys 13.2% boys

Codeine-based drugs are the most common used but more predominant among girls than Boys.

Codeine-based syrup was the main illicit drug used, and marijuana use the least prevalent. For codeine-based syrups, ever use during their lifetime, past 12 months and past 30-day use were similar suggesting a persistent and regular pattern of use. Between 2-3% boys and 5-9% girls reported that it was fairly easy or very easy to obtain codeine-based syrups and rafinol. A small minority of boys (2.9%) and girls (5.1%) have been in trouble ever with parents or friends, missed school or got into fights as a result of using illicit drugs.

More girls than boys have been in trouble or missed school due to illicit drug use

Table 3: prevalence of self-reported smoking and illicit drug use amongst male and female pupils

	Boys		Girls	
	n	%	n	%
Intentions to smoke in next 12 months				
Definitely/probably not	520	99.4	276	100
Definitely/probably yes	3	0.6	0	0
Intentions to smoke if a peer offered a cigarette				
Definitely/probably not	529	99.3	273	100
Definitely/probably yes	4	0.8	2	0
Lifetime trouble/fights with family, friends or school due to drugs				
Never	506	97.1	261	94.9
Ever	15	2.9	14	5.1
Lifetime use of prescription drug off prescription				
Never	453	86.8	177	64.1
Ever	69	13.2	99	35.9
Illicit drug by injection				
Never	517	98.9	275	100
Ever	6	1.1	0	0
Marijuana				
Never	522	99.8	275	100
Ever	1	.2	0	0
Lifetime use of codeine-based cough syrup				
Never	509	97.5	264	95.7
Ever	13	2.5	12	4.3
Lifetime use of rafinol				
Never	516	98.7	276	100
Ever	7	1.3	0	0

N=266/7 missing data for the girls (Taura school opted out of responding to these questions).

Drug abuse is worrying us, it brings much harm to the youths and they consume it because it makes them feel relaxed/comfortable and relieved

Almost all the young boys and girls in the Focus Group Discussion (FGDs) were mostly concerned about drug use/abuse. Drug-related health challenges differed by gender with girls most at risk and more predominant in Kano. The most popular reasons for use of drugs were to feel relaxed/comfortable and relieved mood/problems. Key drivers of drug use were poverty, unemployment and low income.

“Drug abuse is worrying us very much; it brings much harm to the youths. You will see a girl, well-disciplined with good upbringing, but she can come in contact with bad friends, who will overpower her and she will fall into abusing drugs” (FGD, SS2 girls).

Adolescent’s opinion, sources and types of substances used

Tobacco use is not good and should not be overlooked. It causes violence and influences the youths to carry a weapon.

Participants were strongly against the use of tobacco and they did not condone it. They recognise that drug use has become a nuisance in their society and a common practice in Kano than Jigawa. They believe it influences the youths to engaged with alcohol consumption, violence and gangs/thuggery.

“Drug abuse has become a nuisance to our society especially here in Kano, because all these activities of thugs, snatching of people's properties, violence have been a result of drug abuse” (FGDs SS1 boys).

Drug abuse leads to rape and causes unprotected sex.

Drug use causes organ damage, mental illness, HBP, poor risk perception. They believe abuse of drugs can lead to rape and trigger the youths to have unprotected transactional sex. They blame young peoples’ use of drugs on the carelessness of parents and non-attendance of schools

Marijuana, Benylin Syrup and tobacco are common substances abused by Adolescents

The type of substances reported to be regularly consumed by adolescent boys and girls during the FGDs include Marijuana/Indian hemp, Benylin Syrup, tobacco, cigarette and to a lesser extent Cocaine. Surprisingly, the girls mentioned more type of drugs consumed than boys (Table 4).

Table 4: Sources of drugs

Girls	Boys
Friends	Politicians
boys friends/suitors	chemist
Politicians	Frends
Pharmacist	Drug dealers
Hawkers	Petty traders
Parties	abductors

Adolescents commonly get drugs from their friends and politicians.

Adolescent girls access drugs through varied sources. While the girls mostly get drugs from their girlfriends/boyfriends, the boys mostly get drugs from the politicians.

Also, some of the adolescents are initiated into drug

“Drug abuse, cigarette smoking and marijuana, all these are introduced by friends. It causes mental problem and damages the lungs. Mostly friends are the ones that persuade their peers to adopt such habit, and once they fall into that trap, they can never stop doing such thing” (FGDs SS1 boys).

use by their friends, especially in parties and clubs. The girls mostly by the boyfriends. A boy or girl is regarded as unwise if he or she doesn’t take drugs. They recognised the mental effect and health challenges associated with drug abuse.

Other health challenges and experienced by adolescents

Rape and STIs mostly happen to youths and really giving us concern

Other health concerns identified during the FGDs include rape, lower abdominal pain/mensuration pain, toilet infection/STI, malaria, drug abuse, typhoid fever and cholera (Table 5)

Table 5: Health Concerns/challenges of adolescent boys and girls

Girls	Boys
Drug abuse	Malaria
Lower abdominal pain/ Irregular mensuration	Drug abuse
Toilet infection	Cholera/ diarrhoea and vomiting
Malaria	Typhoid fever
Back pain/ Chest pain	Stomach pain
Mental health	Sexual Transmission infections
Rape	Ulcer

“Young people mostly discuss the issue of rape, which mostly happens to the youths and it is really worrying us, they are facing disgrace and it is badly affecting their health. You will see a 70yrs old raping a very young girl, this kind of thing makes me feel sad”. (FGD, SS2 girls).

Physical activity among adolescent boys and girls

Adolescent boys and girls engage in low level of physical activity

Table 6 shows results for self-reported patterns of physical activity. Overall, both boys and girls lead sedentary lifestyles based with low levels of physical activity reported for the past seven days. There are some differences in the patterns of activity, and type of activity between girls and boys. A higher proportion of boys had not taken part in a PE class in the past seven days and spent lunchtimes sedentary or sitting compared with girls.

Overall, a third of boys and girls reported doing very little activity in the past seven days.

However, boys were more likely to take part in physical activity right after school, during the evenings and weekends compared with girls. Overall, a third of boys and girls reported doing very little activity in the past seven days.

Table 6: Self-reported physical activity during past seven days

	Boys		Girls	
	n	%	n	%
PE class in past 7 days				
Never or hardly ever	490	90.3	367	67.7
Physical activity during lunchtime in past 7 days				
Sedentary/sitting	400	74.5	376	69.4
Physical activity right after school in past 7 days				
None	354	66.9	205	37.8
Physical activity during evenings in past 7 days				
None	267	49.8	161	29.8
Taking part in sport, dance or games during the past weekend				
None	271	50.6	198	36.6
Best description of activity during the past 7 days				
All or most of my free time was spent doing little physical activity	162	30.2	178	33.0

Adolescents have good knowledge of the benefits of Physical activities but involvement is low

Not many of them responded to the question. However, the ones that responded seem to have a good knowledge of the benefits of physical activities. Generally, they acknowledged the importance of physical activity in improving blood circulation and makes it difficult for a disease to attack. Also, they believe it helps the body stay strong and not to be wrinkled when you get to older but overall, the level of involvements in these activities are limited.

“Physical activity helps in reducing weight and improves blood circulation. It plays a role in our good well-being. For example, if a person is doing some physical activity, it will be hard for any disease to attack him. A person that moves his body doesn't gets tired easily compared to the one that stays in one place all the time without doing any exercise” (FGDs SS2 girls).

Dietary behaviours of adolescents

Table 7 shows results for dietary behaviours. As with physical activity, there were some differences in the dietary practices between the girls and boys. A higher proportion of girls reported that they are about the right weight, compared with the boys who more commonly described themselves as slightly or very underweight. A similar proportion of boys (13.6%) and girls (12.0%) described themselves as slightly or very overweight. Furthermore, a higher proportion of boys than girls reported actively trying to lose or maintain their weight, or actively gain weight through diet and exercise, diet pills or other supplements and use of laxatives. The availability of fast foods and carbonated drinks were commonly reported by both boys and girls.

About 13.6% of boys and 12% of girls described themselves as slightly or very overweight. Boys were more actively trying to lose weight than girls.

Table 7: Dietary behaviours

	Boys		Girls	
	n	%	n	%
<i>Frequency of eating breakfast (past 30 days)</i>				
<i>Always or most of the time</i>	400	74.5	488	90.1
<i>Self-described weight</i>				
<i>Very/slightly underweight</i>	304	56.6	167	30.8
<i>About right weight</i>	160	29.8	310	57.2
<i>Very/slightly overweight</i>	73	13.6	65	12.0
<i>Take exercise to lose weight or keep from gaining weight</i>	230	43.6	115	21.2
<i>Use diet pills, powder or liquid to lose weight or keep from gaining weight</i>	210	39.5	4	0.7
<i>Limiting diet to lose weight or keep from gaining weight</i>	256	47.9	93	17.2
<i>Using laxatives or vomiting to lose weight or keep from gaining weight</i>	203	38	19	3.5
Can buy carbonated soft drinks or get them for free in school?	268	30.3	265	48.9
Can buy fast foods or get them for free in school?	352	65.7	403	74.4

Adolescent boys and girls have poor knowledge about what constitute a balanced diet.

Overall, adolescents had poor knowledge of what constitutes a balanced diet. Some of them believe a balanced diet can be known through a method of preparation, cooking pattern, the smell of the food.

These erroneous views were common among the girls than the boys. Only few mentioned that a balanced diet contains all the six classes of food.

“If you see a good diet you can identify it right from the plate it has been served, method of preparation and you won't see any dirt on it, and the food will also be garnished, so before it reaches your mouth, you will know that it is good (FGD SS1 girls).”

Prevalence of mental health issues among adolescents

Adolescent girls have worse mental health and higher proportion of girls with mod/severe anxiety and depression.

Table 8 shows results for self-reported anxiety over the previous two weeks measured using the General Anxiety Disorder (GAD 7) scale, and depression using the Patient Health Questionnaire-9 (PHQ-9) scale. The mean scores were higher on both measures for girls than for boys indicative of greater anxiety and depression symptoms in the previous two weeks.

	Boys			Girls		
	Number analysed	Mean	95% CI	Number analysed	Mean	95% CI
Anxiety (GAD 7) score	514	1.21	1.02, 1.40	485	3.12	2.76, 4.47
Depression (PHQ9) score	434	1.64	1.41, 1.86	379	3.96	3.51, 4.41

Table 8: Anxiety and depression symptom scores

The GAD 7 score and PHQ-9 score for each pupil was categorised according to standard criteria, whereby GAD 7 scores: 0-4=none; 5-9=mild; 10-14=moderate; >15= severe anxiety disorder. PHQ-9 scores: 0-4=none; 5-9=mild; 10-14=moderate; 15-19=moderate/severe; 20-29=severe depression. According to these criteria, the prevalence of moderate-severe anxiety (6.8% girls, 0.8% boys,

Prevalence of moderate-severe anxiety was higher in girls (6.8%) than boys (0.8%); and moderate-severe depression (10.3% girls, 0.5% boys).

p<0.001); and moderate-severe depression (10.3% girls, 0.5% boys, p<0.001) was significantly higher in girls than boys (Table 9).

Violence/abuse in school was common among adolescent boys and girls

Violence or abuse in school was commonly reported by both boys and girls (Table 10). Just over half of boys (56.9%) reported being hit, slapped or physically hurt by another pupil in the past 12 months, and 51.2% by a teacher.

Girls were less likely to be hit, slapped or physically hurt by a teacher (34.4%) or by a friend in a relationship (18.8%) but 54.5% reported being hit, slapped or physically hurt by another pupil.

Significantly more girls than boys reported they carried a gun, knife or stick to school during the last 30 days.

Table 9: Self-reported general anxiety disorder and depression symptom severity in previous two weeks

		Boys		Girls	
General anxiety disorder		n	%	n	%
None		461	89.7	353	72.8
Mild		49	9.5	99	20.4
Moderate		4	0.7	23	4.7
Severe		0	0	10	2.1
Depression					
None		382	88.0	250	66.0
Mild		50	11.5	90	23.7
Moderate		2	.5	27	7.1
Moderately severe		0	0	9	2.4
Severe		0	0	3	.8

Table 10: Violence and injury

	Boys		Girls	
	n	%	n	%
<i>Ever carry a weapon (gun, knife or stick) during past 30 days</i>	19	3.6	71	25.6
<i>Ever carry a weapon (gun, knife or stick) to school (past 30 days)</i>	23	4.4	65	23.4
<i>Ever missed school due to feeling unsafe on way to or from school (past 30 days)</i>	28	5.3	15	5.4
<i>Ever threatened or injured with a weapon (past 30 days)</i>	4	0.8	40	14.3
<i>Physical fight causing injury requiring treatment or missing usual activities (past 12 months)</i>	20	3.8	35	12.5
<i>Physical fight at school (past 12 months)</i>	14	2.7	71	25.4
<i>Hit, slap or physically hurt by a teacher (past 12 months)</i>	268	51.2	96	34.4
<i>Hit, slap or physically hurt by another pupil (past 12 months)</i>	298	56.9	152	54.5
<i>For pupils in a relationship</i>				
<i>Hit, slap or physically hurt by a friend (past 12 months)</i>	198	44	8	18.8

Reproductive health practices, knowledge and challenges among adolescents

Adolescent girls have good knowledge about mensuration and get support mostly from relatives but needs support with sanitary materials.

Around 50% girls start menses by age 13 years, and 82% by 14 years (Table 11).

Three-quarters of the girls were at school when they commenced menstruation (77.3%), had prior knowledge about menstruation (93%), and got this information at school from a teacher (62%), but most (90%) told their mother or sister when menses started. A third of the pupils reported that they were scared, and a third neither scared nor happy when they first started menstruating. The majority of girls (96.6%) reported that they use disposable sanitary pads and only a small minority reported using rags and cloths.

However, sanitary facilities to dispose of pads and wash hands or cloths in privacy are lacking.

Mensural hygiene practice is good and non-ritual purification produces an offensive odour

Almost all the girls understand the importance of maintaining a good mensural hygiene practice. Some of them acknowledged the need to change soiled pads on time and bath regularly. Some reported spraying perfume and rubbing alum on their body after bathing as it prevents odour.

One aspect of mensural hygiene management pointed out by the girls include “Ritual purification”. They believed young girls who are not practising this act of worship/purification produces offensive odour and smells.

Table 11: Mensural hygiene knowledge and practices

	Girls	
	n	%
<i>Age of menarche (years)</i>		
11	24	5.0
12	54	11.3
13	158	33.1
14	157	32.8
15	71	14.9
>15	12	2.5
<i>Can't remember</i>	2	0.4
<i>Source of information about menstruation</i>		
Mother	98	22.0
Sister	34	7.6
Friend	27	6.1
Teacher	276	61.9
Aunty	8	1.8
Doctor/nurse	2	.4
TV/radio	1	.2
<i>Use of sanitary pads or cloths</i>		
Disposable sanitary pad	458	96.6
Old cloth/rag	4	.8
New cloth	5	1.1
Cotton	5	1.1
Tissue paper	1	.2
Prefer not to say	1	.2

Girls receive support during menses from their parents and teachers and use alum as a deodorant.

They mostly get support from their parents during mensuration followed by the teachers.

In order to eliminate odour, the girls use perfume, soaps, alum, 'humra' and other fragrance substances.

"The way that girls should manage menstrual hygiene is that, for example, not everyone can afford to buy perfume, so alum can also serve. If you mix it with cloves, put it in a plastic container and rub it all over your body few minutes before taking bath. After taking bath, you rub it in different parts of your body to avoid bad odour. So, if you can't afford to use perfume, this alum really helps" (FGDs SS2 girls).

Adolescent girls use dirty clothes, cotton wool, mattress foams in place of sanitary pads and need a safer place to dispose of sanitary materials.

Due to financial difficulties, the girls use tissue paper, dirty clothes, cotton wool, mattress foams in place of sanitary pads. Sanitary pads are disposed using polythene bags and in some cases in areas where people can see it and lack proper disposable facilities for sanitary materials.

"There are some that cannot afford to buy sanitary pads, so they use dirty pieces of cloth. Just like here at school, some are using mattress foams also, this is not supposed to be done. We use sanitary pad and there are some that use pieces of cloth, because not everyone can afford to buy sanitary pad. It will be better for parents to provide their children with sanitary pad, when they are going to school, because it is better than tissue paper, piece of cloth or cotton wool" (FGDs SS1 girls).

Adolescents understand the importance of personal hygiene practices but care less about it

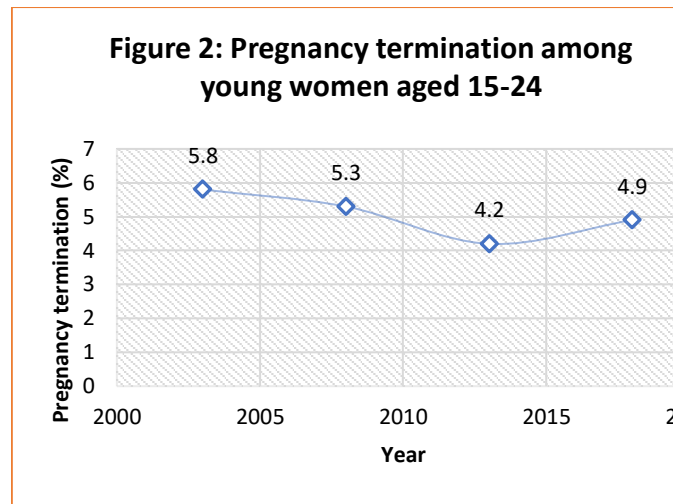
Most adolescents seem to understand the importance of personal hygiene practices. However, the knowledge was more among girls than boys. Some of the participants understand the need to clean their body and take bath regularly especially among the girls during mensuration. The motivation for personal hygiene reported was to live peacefully and avoid stigmatisation from the family members. They noted the importance of hand hygiene but argued that some adolescents do not care much about it. They believe

"What we know about personal and menstrual hygiene is that, you should keep your body clean and take bath regularly, and also change soiled sanitary pad on time. We practice personal hygiene because we want to live peacefully within our families, if everyone is neat and you are dirty, you will be stigmatized". (FGDs SS2 girls).

stomach pain, vomiting and diarrhoea can be contracted from people who do not observe good hygiene practices.

Pregnancy termination among 15-24-year olds in Nigeria

- Overall, pregnancy termination among young women aged 15-24 significantly declined from 5.8% in 2003 to 4.2% in 2013 then increased up to 4.9% in 2018 in Nigeria (See fig 2). However, the rate of decline varied across regions with Northwest showing no sign of decline compared to the national average. E.g. Pregnancy termination in Northwest increased from 6.4% in 2003 to 6.7% in 2018, while South East went from 7.0% in 2003 to 1.3% in 2018.



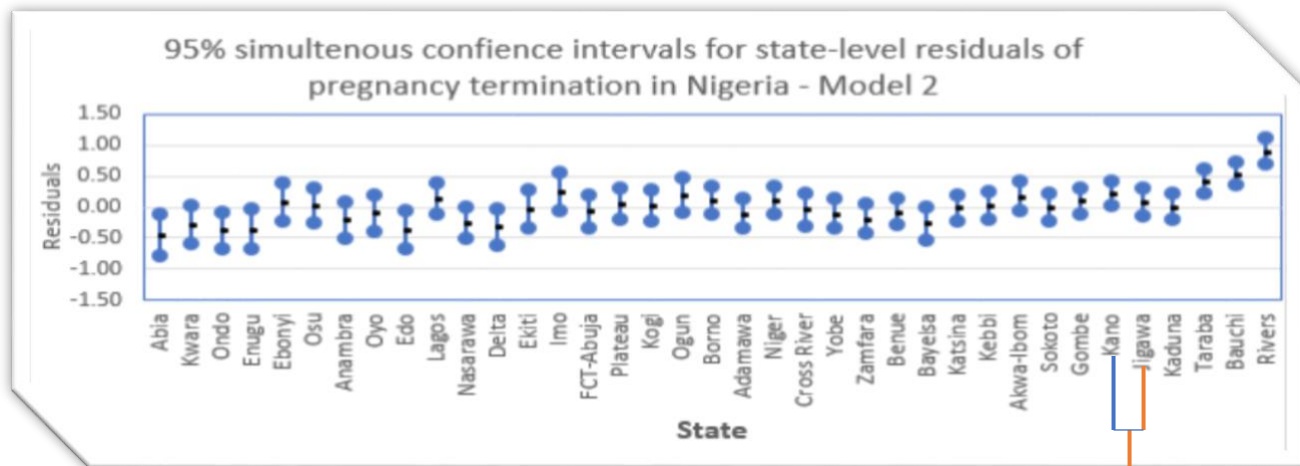
- Young girls in North East (10.9%) and North West (10.0%) have had sexual intercourse before their 15th birthday compared to young girls in South East (5.0%) and South West (5.2%).
- Young girls who had initiated sexual activity before age 15 were more than twice more likely to terminate a pregnancy than those who initiated sexual activity at 18 years or older.

Kano (5.8%) and Jigawa (6.8%) were among the top six states with the highest level of pregnancy termination among 15-24-year olds in Nigeria

than Southern region of Nigeria. E.g. Kano (5.8%) and Jigawa (6.8%) were among the top six states with the highest level of pregnancy termination among 15-24-year olds in Nigeria. (See figure 3).

- Women from Igbo and Yoruba ethnic groups were less likely to terminate a pregnancy than women of Hausa ethnic group. This is more among young women with low socioeconomic status.
- The states with the highest risk of pregnancy termination were predominantly in the Northern

Lowest → Highest



Kano
&
Jigawa

Figure 3: State variations in pregnancy termination among young women aged 15-24 years in Nigeria.

Table 12: Pregnancy termination by selected characteristics among young women aged 15-24 in Nigeria, 2003-2018 NDHS

There were significant variations in pregnancy termination across communities and states in Nigeria (Table 12). Around 17% and 7% of the total variations in pregnancy termination were attributable to community-level and state-level factors, respectively, while 86% was attributable to individual-level factors.

Variables	2003	2008	2013	2018	Total	
	%*	%	%	%	%	Unweighted cases
Ethnicity***						
Hausa	6.6	6.3	5.7	7.0	6.4	11058
Igbo	4.0	3.1	2.4	1.7	2.5	6499
Yoruba	2.0	1.8	2.8	2.4	2.4	5895
Others	6.7	6.4	4.4	5.1	5.4	22272
Religion**						
Catholic	5.5	4.5	2.6	3.2	3.6	5179
Other Christians	4.9	5.9	3.8	3.3	4.3	18222
Islam	6.6	5.1	4.8	6.1	5.5	22207
Total						45732

=p<0.05; *=p<0.001; *=weighted %

Health seeking behaviour and barriers to accessing health information/services

Adolescents are willing to access health-related information but no appropriate services to meet their needs.

There are a strong quest and gender differences in seeking reliable health information from experts. Girls have a more positive attitude towards seeking medical services/information on time than the boys.

“It takes us long before we get treatment. Sometimes they will even say a person is just pretending, that you just want to go home, a person can spend about a week without getting aid, or there is even no medicine available in the clinic, sometimes a person will remain like that and recover without getting any treatment” (FGDs SS1 boys)

Embarrassment and lack of service availability limit both boys and girls from accessing health services

Reason for delay in seeking help especially among the boys includes embarrassment, lack of medication in the clinic, shyness and harassment by the school health providers.

Table 13: Sources of Health information

Girls	Boys
Hospital/doctors	Teachers
Teachers	TV/Radio
Elder sister	Doctors
Mothers	Internet/social media
Internet/social media	Health workers
TV/Radio	Books

Adolescents have a strong affinity to seeking health information from doctors, teachers and parents

The girls have a strong tendency to seek health information from doctors, teachers and parents, while the boys are more penchant to their teachers, and doctors (Table 13). Both genders prefer doctors because of their expert knowledge

of health matters. Boys have limited access to health information than girls. This is common among the boys in Kano than Jigawa.

Adolescents opinion about school club’s and peer to peer information sharing

Adolescents strongly want to have school clubs in their schools, as it will help them to be well informed

Almost all the participants were in support of having a school club in their schools. They believe school clubs will help them access health information, be more enlightened, help them avoid contracting diseases and gain an

“It is good to have a health club in this school, we have it but it is not functioning, it should be revived. We are seeing the benefits of the sources of health information, but we don’t have them in our school, but we are hoping to get them because they are very useful indeed and will help us to be enlightened” (FGDs SS1 boys).

understanding of the issues relating to their body. Also, they believe such information will help them to correct erroneous belief people hold in their communities. The boys reported not having a source of health information in their schools than the girls. This is more among the boys in Kano than those in Jigawa.

Adolescents are in support of receiving information from their peers due to confidentiality and privacy.

Majority of the adolescents strongly support the peer-to-peer information sharing. They were of the view that peer-to-peer information sharing offers some level of confidentiality. In addition, they alluded that their friends can inform and explain to them better than their teachers and are much more informed with reliable information. However, some of the boys especially those in Kano believe that receiving health information from friends is not appropriate as they believe they do not have the right knowledge, and are likely to misguide others.

Of course, receiving information from our peers is very important, your friend will explain things to you and maybe she has experienced your kind of problem so she will help you out of the problem. If I have a certain problem and my friend have encountered a similar problem, she can be able to tell you how she solved her problem (FGDs SS2 boys).

OVERARCHING KEY FINDINGS

- High degree of engagement and support for the project across a wide range of stakeholders
- Consensus on the main health issues facing adolescents in the North West region of Nigeria
- School pupils demonstrated motivation and knowledge on some health topics, but wanted more autonomy and reliable sources of information
- Unmet need for health information sources, advice and support which are independent
- Practical difficulties gathering data from school students due to gatekeepers restricting access and vetoing specific aspects of the approved questionnaire
- Mental health issues, violence and injury and substance misuse inter-relate
- Strong quest for age-appropriate sexual and reproductive health information and services for adolescents in the region.

Recommendations for future research, policy and schools

For research

- Research required to inform development of culturally-relevant intervention(s) that target physical, mental and reproductive health for adolescents
- Identify barriers to facilitating a conversation around sexual and reproductive health in the region
- Research required to inform the development of information for a platform where adolescents go to find reliable information on health that is confidential
- Need for multiple agencies to work together – education and health sectors and involve all stakeholders
- Promote the establishment of an Adolescent Advisory Group (AAG) with a remit to contribute their views to development of adolescent health education curricula and health services provided in schools and in the community

For schools

- Teachers and school staff need to promote conflict resolution, support students who are victims of violence and abuse
- Teachers need to be trained to identify pupils with mental health issues and abuse, and signpost students to the appropriate support services where available or where they can get help
- Where possible and appropriate include reproductive health in training or information sharing opportunities for school staff to ensure all teachers are up to date with current knowledge
- Incorporate effective communications training within teacher training courses to ensure that teachers feel comfortable discussing physical, mental and reproductive health issues with pupils.

Provide a confidential platform for adolescents to give feedback to the school on any issues or concerns they have about their general health or wellbeing

- Seek the views of adolescents in the design of content and mode of delivery of services
- Support the establishment of an Adolescent Advisory Group (AAG) with a remit to contribute their views to development of adolescent health education curricula and health services provided in schools and in the community

For traditional leaders

- Promote and support interdisciplinary working to improve adolescent health
- Prioritise adolescent health as a key objective for health improvement strategies

For healthcare providers

- Services in schools and the community need to be tailored to adolescents, so that they are non-stigmatising, non-judgemental, and provide evidence-based information and create a confidential 'safe space' for adolescents to seek advice and support
- Support the establishment of an Adolescent Advisory Group (AAG)
- Seek the views of adolescents on the design and delivery of youth friendly services

For NGOs and CBOs

- Increase awareness of age-appropriate health information and support services that are available in the community through outreach activities in schools
- Support the establishment of an Adolescent Advisory Group (AAG)
- Seek the views of adolescents on the design and delivery of youth friendly services

For policymakers

- In line with recommendations from the Director Public Health, Jigawa state Ministry of Health, one of the outcomes of this project should be facilitating consultative workshops the implementation of the existing school health policy is implemented and seek views from multiple stakeholders on how to do this
- Invest in work on how to establish and expand adolescent health services
- Invest in and promote fora for adolescents to voice their health concerns and health needs
- There is need for a policy that supports and encourages teachers and other relevant stakeholders to discuss and provide age-appropriate reproductive health information to adolescents without restrictions.

Next Steps: Phase 4: Co-production of the intervention

The immediate next phase of the work is to share the results of the research so far with stakeholders to validate and further develop the recommendations into a plan for the next stage of the project – developing and testing a culturally sensitive health literacy/health promotion intervention for adolescents in Jigawa and Kano States that could be scaled-up to other states within Northern Nigeria.

Part of that plan will need to focus on the elements of the intervention itself, but to be sustainable and replicable, part will also need to facilitate continued collaboration between the research team and local stakeholders so that acceptability and feasibility of implementing the intervention is addressed at the development stage [65]. We will learn collectively about what works and what does not work and continuously refine the approach through a process of transdisciplinary action research [66-69].

The research project team will be supported in this phase by the International Network for Advancing Science and Policy (INASP), an international development charity working to improve access, production and use of research information and knowledge in low- and middle-income countries.

Activities in Phase 4 to achieve these objectives will include:

- An online MOOC (Massive Open Online Course) to upskill early career researchers across Northern Nigeria. The aim of the MOOC is to increase capacity for communicating and publishing research findings among early career researchers interested in reproductive, maternal, newborn, child, and adolescent health in the Northern Nigeria.
- A policy-engagement workshop (webinar) for researchers, policy makers and legislators from Jigawa and Kano states to build their capacity on generating and utilising locally generated evidence to guide policy-formulation and decision-making particularly with respect to reproductive, maternal, newborn, child, and adolescent health in their states.
- An online workshop (webinar) for all project stakeholders to review this research report and the recommendations and co-develop the main elements of the next phase of the project.

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