Measuring the effectiveness of teaching sex education in Nepalese secondary schools - an outcome from a Randomised Controlled Trial (RCT)

By

Dev Raj Acharya

MSc, Health Services and Public Health Research

University of Aberdeen

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DECLARATION

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

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STATEMENT 1

This thesis is the result of my own investigations, except where otherwise stated. Where correction services have been used, the extent and nature of the correction is clearly marked in a footnote(s).

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ABSTRACT

This study aimed to identify the effectiveness of delivering sex education in secondary schools in Hetauda (Nepal) by exploring the sexual health knowledge and understanding of young people, and parents' and teachers' views on sex education, in order to place the findings in the wider social, cultural and educational context of modern Nepal. The research selected four secondary schools pupils of diverse socio-background characteristics in Hetauda municipality, central Nepal. This study was conducted by undertaking an intervention in control (2 schools) and experiment (2 schools) groups, and as such constituted the quantitative method. Semi-structured Key Informant Interviews (KIIs) with 14 key stakeholders (6 parents and 8 teachers) and 8 Focus Group Discussions (FGDs) with 78 pupils constituted the qualitative method. Quantitative and qualitative data were analysed separately by utilising statistical software (SPSS, 19) and thematic analysis, respectively. Outcomes were compared, combined and discussed.

This study relies on a multiple theory platform (cognitive constructivism, social constructivism and social cognitive theory) to evaluate the effectiveness of sex education delivery in schools. The conventional teacher in the control school delivered the sex education programme in a didactic approach. The result had less impact on pupils' sexual health knowledge and understanding. In contrast, the health facilitator-led experimental schools used a participatory approach which showed a reasonable knowledge increment around sexual health. However, the pupils were still confused and uncertain about how to obtain sexual health information from relatives of a similar age and their family members. Many parents lacked the knowledge,

confidence and skills to offer meaningful support to their children. This study noted four main important influential sexual health attitudes and behaviours of the pupils: ambiguous social roles leading to confusion; increased sexual awareness and curiosity about sex; significant gaps in knowledge and behaviour; and limited parental input.

This study suggested several possible approaches that could be developed to improve sex education in Nepal. Young people need more information on the risk of Sexually Transmitted Infections (STIs) and unwanted pregnancies. This could encourage them to gain more sexual health knowledge which in turn could lead to increased engagement in safer sexual health practices. In particular, more young girls should be provided with access to sexual health knowledge and services in order to achieve real improvements in pupils' sexual health. Furthermore, attention needs to be given to rigorous research and appropriate sex education interventions in school. Integrating sex and relationship education, both in formal and informal education, could help to improve young people's sexual and reproductive health status.

Key words: Sex education; School; Pupil; Young people; Knowledge; Behaviour

To

Ranju, Aarush and Celena

''Clouds come floating into my life, no longer to carry rain or usher storm, but to add colour to my sunset sky''

-Rabindranath Tagore

EXTERNAL ACTIVIITES

Related to this thesis, the following activities have been accomplished during the study period.

Books reviewed

Global politics of health (2010). Edited by Davies Sara. Polity press, Cambridge.

Promoting health and well-being through schools (2010). Edited by Peter Aggleton, Catherine Dennison and Ian Warwick. Routledge, Oxon.

Abstracts of conferences

Acharya, D., Thomas, M. and Cann, R (2011). Developing a questionnaire to measure sexual health well-being in Nepalese secondary schools. RSPH Public Health International Conference, London, 8-9 September *(Poster presentation).*

Acharya, D., Thomas, M. and Cann, R (2011). The involvement of parents and pupils in a sexual health education programme in Nepalese secondary schools. Global Health Conference, Montreal, Canada, 13-15 November *(Poster presentation).*

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
CBOs	Community Based Organisations
CBS	Central Bureau of Statistics
CDC	Curriculum Development Centre
CERSOD	Centre for Research and Sustainable Organisational Development
CVI	Content Validity Index
DEO	District Education Office
DoH	Department of Health
FPAN	Family Planning Association of Nepal
FSWs	Female Sex Workers
HIV	Human Immunodeficiency Virus
HPE	Health Population and Environment
HSEB	Higher Secondary Education Board
ICPD	International Conference in Population and Development
FGDs	Focus Group Discussions
JRC	Junior Red Cross Circle
KIIs	Key Informant Interviews
MDGs	Millennium Development Goals
MeSH	Medial Sub Headings
MoE	Ministry of Education
MoH	Ministry of Health
NCASC	National Centre for AIDS and STD Control
NCED	National Centre for Educational Development
NDHS	Nepal Demographic Health Survey
NER	Net Enrolment Rate
NFE	Non-Formal Education
NGO	Non-Governmental Organisation
NHRC	Nepal Health Research Council
NHS	National Health Services
PCA	Principal Component Analysis
PHC	Primary Health Centre

RCT	Randomised Controlled Trial
SHARE	Theoretically Based Sex Education Programme in Scotland
RIPPLE	Pupil-Led Sex Education Programme in England
SHQ	Sexual Health Questionnaire
SRH	Sexual and Reproductive Health
STIs	Sexually Transmitted Infections
TU	Tribhuvan University
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFPA	United Nations Population Fund
WHO	World Health Organisation

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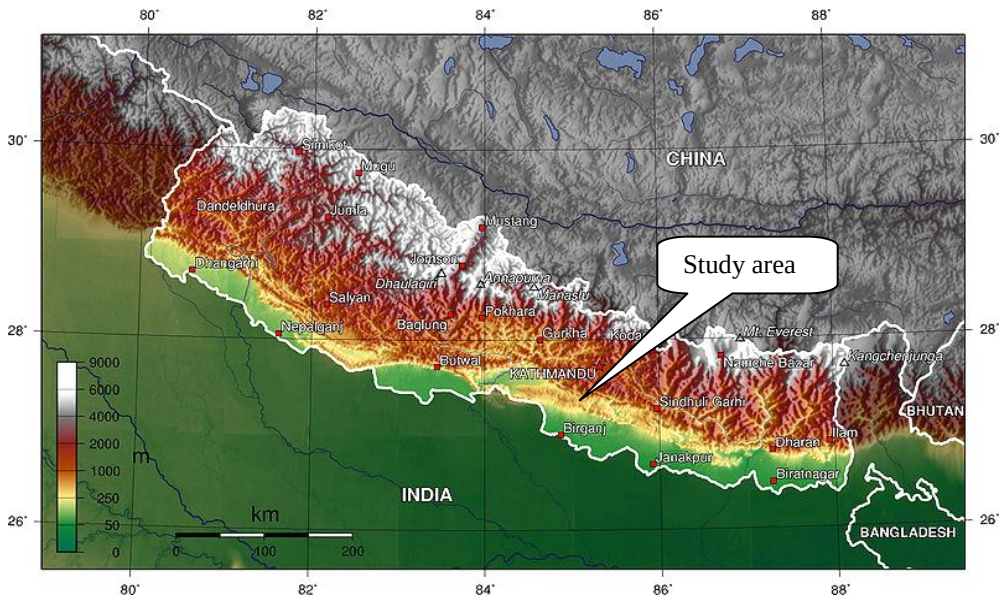
CHAPTER-1: INTRODUCTION TO THE STUDY

1.1 Nepal: a summary

Nepal is a tiny landlocked country situated in the Northern hemisphere, known as the land of Mount Everest and the birthplace of Lord Buddha. It is located in South Asia, between China to the North and India to the East, West and South as shown in Figure 1.1. Nepal is one of the poorest countries in the world with an annual *per capita* gross national income equal to US $540 (World Bank, 2013). The total area of the country is 147,181 square kilometres (Central Bureau of Statistics Nepal, 2012). It has great physical diversity, ranging from the plains at about 60 metres above sea level in the South to the 8,850 metres high Mount Everest in the North (*ibid.*, 2012). The climate also varies from cool summers and winters in the mountains to sub-tropical summers and mild winters in the Southern plains.

Figure 1.1: Map of Nepal and study site



(United Nations, 2011)

Nepal is divided into three geographical areas; the mountains in the North, the hills in the middle and the *terai* (plain) in the South. The *terai* region ranges from a maximum altitude of 305 to 610 metres above sea level, occupying 17% of the total land area of Nepal and accommodating 48.4% of the total population (*ibid.*, 2012). The hill region varies from 800 to 4,000 metres in altitude progressing from sub-tropical climates below 1,200 metres to alpine climates above 3,600 metres (*ibid.*, 2012). The region also includes Kathmandu, the capital city of Nepal. The mountain region lies in the Himalayan Range, which is in the Northern part of Nepal and contains the highest peak in the world Mount Everest (*ibid.*, 2012).

Nepal, like many other countries in the world, has experienced many demographic changes over recent years; the population of the country has grown phenomenally, from 5.5 million in 1911 to 30.49 million in 2011, an increase of nearly 6 times in a century (World Bank, 2013). Life expectancy is 69 years for men and women (*ibid.*, 2013). Similarly, Nepal's adolescent population (aged 10 to 19) constitute more than a fifth of the total population and the proportion of young people (aged 15 to 24) has increased steadily (*ibid.*, 2013).

Nepal is a Federal Democratic Republic country, being the world's most recent nation to become a republic in May 2008 (MoHA Nepal, 2011). Nepal has continued to experience socio-economic and political changes since the restoration of multi-party democracy in 1991 (Devkota, 2007). Socio-economic progress and the development of technological advancements, including mass media and increased participation in education, have been observed in most urban areas of Nepal (*ibid.*, 2007). As an example, until 1995, government-owned Radio Nepal and Nepal

Television used to be the most prevalent form of mass communication which delivered a limited amount of informative and entertainment programmes (MoIC Nepal, 2006). However, after 1995, many private radio stations, television channels and newspaper publishers entered the mass communication business (Press Council Nepal, 2011). For example, there are currently 31 television channels, 231 radio stations and 514 daily and weekly newspapers (*ibid.*, 2011).

1.2 Study context

Young people in Nepal are at acute risk of Sexually Transmitted Infections (STIs), Human Immunodeficiency Virus (HIV) infection and unplanned pregnancies (Dahal, 2008). Despite the increase in general awareness, comprehensive knowledge of sexual health is relatively low among them (*ibid.*, 2008). In a study conducted in the UK Sharland (2006) argued that a majority of young people are considered as excluded risk-taking troublemakers motivated by nothing more than their own self-interest. The reality is that young people's lifestyles and behaviours are expressions of the dominant values of society, which is too often neglected (*ibid.*, 2006). The research on young people is of interest not only because it has the potential to share so much about what it means to be a young person in modern society, but also because it could offer information on the changing nature of social life. According to Miles (2000), young people are a barometer of social change. They represent a rich source of sociological debate and in many cases; such debate does not necessarily reflect young people's experience of social change (*ibid.*, 2000).

In general, sexual behaviour among young people has been considered one of the most important social and public health issues in developing countries (Le and

Kato, 2006). Sexual and reproductive health programmes have seen a marked improvement in young people's sexual health knowledge since the 1994 International Conference on Population and Development (UNFPA, 2004; Dehne and Riedner, 2005). The issues of Sexual and Reproductive Health (SRH) is still the main reason of ill health among adolescents worldwide and are of major concern in Nepal (Jha, Chaurasia and Jha, 2010). However, sexual and reproductive health related research is lacking in Nepal (Adhikari and Tamang, 2009).

According to Agampodi and Agampodi (2008), the term 'young people' covers those at the onset of puberty up to and including those who have achieved adulthood. This study has used the term 'young people' throughout, although the definitions for 'adolescents' and 'young people' are slightly different. The terms young people, adolescent and youth, are not easily defined, as they are each used in an imprecise manner to indicate those who are young in age. Different organisations and researchers refer to different age groups when defining adolescent, youth and young people. Adolescence has been defined by the World Health Organisation (WHO, 1997) as the period of life spanning the ages between 10 to 19 years and youth as between 15 to 24 years. Those who fall in the age group 10 to 24 are considered young people (*ibid.*, 1997). This study has used the terms young people interchangeably for young boys or girls and relates to those between 10 to 24 years based on the definition given by the WHO.

Young people's physical growth is accompanied by sexual maturation leading to intimate relationships, which, if not guided properly, could lead to various sexual

problems (Jha *et al.*, 2010). It is typically believed this time of life is often affiliated with challenges and difficulties (*ibid.,* 2010). When young people begin the journey to adulthood, they often have difficulties fitting into society. In searching for their identities within society, young people might begin unhealthy experimentation. This experimentation could include tobacco products, sex, alcohol and drugs. This could render young people susceptible to STIs and HIV/AIDS (Gaash, Ahmad, Kasur and Bashir, 2003). In addition, cultural beliefs, including ideologies of masculinity and femininity, may affect individuals' sexual decision-making (Dahal, 2008). Therefore, many people around the globe, including health educators, researchers and policy-makers are attempting to significantly reduce and eliminate young people's propensity for risk-taking (Mahat and Scoloveno, 2001; Jha *et al.*, 2010).

School-based sex education is a strategy to prevent and reduce sexual and reproductive health problems in young people. In Nepal, sex education in school is an important topic of public debate. Sex education has been adopted in the school curriculum in Nepal; however, evidence shows that slow progress is being made (UNESCO Nepal, 2009). Considering this fact, this study is conducted to explore the effectiveness of teaching sex education in Nepalese schools. The research was undertaken during the period of 2009-2014 and describes the wider social context within which the sex education programme is implemented. The research also identifies the existing knowledge and understanding of young people about sexual health. It also explores beliefs and cultural norms around sex and sexuality to help provide more insight into sexual health policy and practice in secondary schools in Nepal.

According to UNESCO Nepal (2009), 23.6 % of Nepalese are adolescent, i.e., they are between 10 and 19 years of age; 32.5% are considered to be of 'young age', i.e., they are between 10 and 24 years old. This indicates that these two groups comprise a significant portion of Nepal's population. In Nepalese society, marriage is a traditional phenomenon and family members organise it at an early age for boys and girls. However, recent data indicates that over a decade, at marriage, the median age of females had gone up from 16.4 years in 1996 to 17.2 years in 2006 (NDHS/New Era Nepal, 2006). One possible explanation behind the age increase for marriage is that young people are receiving education and are living in an urbanised culture (*ibid.*, 2006). Nevertheless, a majority of Nepalese women typically stop going to school when they are married very young (Pokharel, Kulczycki and Shakya, 2006).

1.3 The education system in Nepal

1.3.1 The structure of the current education system

Nepal's formal education system could be categorised into two parts: school education and higher education. According to the Ministry of Education/Curriculum Development Centre (MoE/CDC Nepal, 2005), the Nepalese school education system has four levels starting from pre-primary to the continuum of primary (Grade 1 to 5), lower secondary (Grade 6 to 8) and secondary (Grade 9 to 10). Children of ages 3 to 4 years old study in pre-primary, 5 to 9 years old in primary, 10 to 13 years old in lower secondary and 14 to 15 years old in secondary level (*ibid.*, 2005). School level statistics from Ministry of Education/Department of Education (MoE/DoE Nepal, 2008) have shown that there are 29,448 schools, 6,533,411 students and 165,423 teachers in Nepal. In general, those students who are over 15 years old study at higher education level. Tribhuvan University is the national

education provider for higher education, which also runs Proficiency Certificate Level (PCL) programmes for the age group of over 15 (*ibid*., 2008). The university is well known for its popularity and accessibility to many areas around the country.

1.3.2 Ministry of Education (MoE) in Nepal

There are three structural levels of the MoE in Nepal and these are central, regional and district level (MoE/DoE Nepal, 2008)). There are four divisions in the central level and these are administration, educational administration, monitoring/evaluation and planning (*ibid*., 2008). There is a Curriculum Development Centre (CDC) under the MoE structure, which includes a Non-Formal Education (NFE) section, a National Centre for Education Development (NCED), a Teacher Records Office (TRO) and a Teacher Service Commission (TSC) (*ibid*., 2008). Additionally, there are five Regional Education Directorates (REDs) and 75 District Education Offices (DEOs). The DEOs are responsible for overseeing all the schools within a district and are tasked with coordinating with the Regional Directorate and the Ministry of Education (*ibid*., 2008).

In Nepal, the total number of secondary school aged children (14 to 15 years) is 671,183, of which girls' enrolment accounts for 46% (MoE/DoE Nepal, 2008). However, the Net Enrolment Rate (NER) is only 35%. This means 65% of secondary age children do not continue in mainstream formal education (*ibid*., 2008). Of the total number of teachers at secondary level, about 70% are fully trained and are working in appropriate positions (*ibid*., 2008).

1.3.3 The sex education curriculum in secondary schools

In 2000, Ministry of Education Nepal launched Health, Population and Environment (HPE) education as a core subject at the secondary level (Grade 9 and 10) (MoE/CDC Nepal, 2005). It is taught for four periods a week, each session lasting for 45 minutes (*ibid.*, 2005). The average age of a Nepalese student in Grade 9 is 14 (UNESCO Nepal, 2009). The Curriculum Development Centre (CDC) is the body responsible for developing the school level curriculum, which works under the Ministry of Education (MoE/CDC Nepal, 2005). CDC has formed subject committees to develop, update and provide technical approval to the curricula (*ibid.*, 2005).

In general, CDC organises workshops and gathers feedback from subject teachers (*ibid.*, 2005). This feedback is then widely discussed among the subject committee members. The finalised prototypes and recommendations are then sent to the National Curriculum Council for final approval. More often, the Higher School Education Board (HSEB) forms technical committees to discuss unresolved or emerging issues (*ibid.*, 2005). CDC considers the political condition, commission reports and the urgency of matters to design sex education curricula. It also considers teachers, students and parents as the main source of information (*ibid.*, 2005).

A UNESCO Nepal (2009) report stated that student-learning materials on sexual health education are inadequate at secondary levels. First, the Curriculum Development Centre (CDC) was given the mandate to develop and disseminate student-learning materials at the school level, but it lacks the capacity to do so (*ibid.*, 2009). As a result, students have to rely just on school textbooks as their primary

source of learning material. The second reason for the inaction is a lack of coordination amongst the funding agencies who promote sex education. A very few selected Non-Governmental Organisations (NGOs) have produced student reading materials on life skills and sex education, but these are only disseminated to certain project districts (*ibid.,* 2009).

1.3.4 Gaps and challenges in sex education material development

Considering the importance of school-based sex education for children, Pokharel *et al.* (2006) clearly highlighted that Nepal's formal education system is not free from caveats and constraints. According to UNESCO Nepal (2009), the lower secondary and secondary levels stand at the focus of sex education in Nepal. The report further describes how the present sex education curriculum design and structure seem inconsistent and ineffective in promoting sexual health at the pupil level (*ibid.,* 2009). The curricula is planned to deliver sex education as biological facts, which are provided in a didactic approach (*ibid.,* 2009). However, it lacks the comprehensive information on sexual health, social issues, sexual behaviours, sexual attitude and life skills (Stone, Ingham and Simkhada, 2003). Consequently, sex education has appeared as disjointed across many subjects (*ibid.,* 2003). Many other issues such as sexual harassment, gender inequalities, and stigma and discrimination have not been considered in the curricula (UNESCO Nepal, 2009).

Nevertheless, the Curriculum Development Centre (CDC) provides different platforms to discuss sexual health issues with the teachers, the technical committee, Ministry of Education (MoE), Ministry of Health (MoH) and other stakeholders (UNESCO Nepal, 2009). The Department of Education's (DoE) involvement in the

supervision and follow-up of Non-Governmental Organisations' (NGO) activities in sex education seems lacking (*ibid.,* 2009).

As highlighted by UNESCO Nepal (2009), the production and dissemination of pupil friendly Information, Education and Communication (IEC) materials are insufficient due to the lack of financial means, as well as the lack of collaboration among various departments of the MoE, MoH and the funding agencies. It is important to note that the Curriculum Development Centre (CDC) is responsible to design and develop a system to evaluate the educational materials developed by other organisations (*ibid.,* 2009).

1.4 Overview of thesis

This thesis is divided into six chapters excluding appendices. The first chapter provides an overview of the thesis and describes the background of the issues of sex and sexuality in the context of Nepal. In addition, this chapter shares some information about Nepal's demographic features, including the current educational legislation in school curricula development.

Chapter two provides a literature review of the sexual health knowledge and behaviour of young people and the sex education programme in the global and Nepalese contexts. General information about sex education research, policy and practice are also highlighted in this chapter with more of a focus on unanswered questions about school sex education in developing countries. This chapter also deals with the study's aims and objectives and the justification of research questions and hypotheses.

Chapter three describes the methodology of the study. It describes the research design, philosophical considerations, research methods, questionnaire piloting and main research conducted in the schools. The chapter provides details about the characteristics of the participating schools, sample size, statistical methods undertaken, ethical issues and data triangulation approach.

Chapter four describes the results of this study. This chapter discusses the socio-background characteristics of the participants, pre-test/post-test response rate in the intervention and the effectiveness of teaching sex education in control and experiment schools. The chapter also describes the knowledge about preventive measures to HIV/AIDS, STIs and teenage pregnancy. Based on Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs), the socio-cultural context of school sex education is discussed further. It presents an overview of pupils', parents' and teachers' views on school-based sex education. The characteristics of the participants and emerging themes from the analysis are also presented in this section.

Chapter five discusses the findings with possible explanations. Evidence of previous findings, which are in line with this study, is also described in this chapter. Chapter six outlines the key conclusions reached in this research. This chapter also describes the key recommendations to health and education policy-makers, planners and programme designers to improve the sexual health knowledge and understanding of young people. Implications, limitations and suggestions of the research are also provided based on the available literature as identified throughout

this study.

In the appendices, the main research questionnaire and semi-structured interview schedules for FGDs and KIIs are included. In this section, other materials such as an ethical approval letter, questionnaire piloting, participants' consent forms, data normality check and publications are attached. Participants' socio-background characteristics and detailed analysis of pupils' sexual health knowledge by pre-test/post-test versus control/experiment schools are also included in this section.

CHAPTER-2: LITERATURE REVIEW

2.1 Introduction

The research aimed to investigate young people's sexual behaviour and assessing interventions to improve sexual health knowledge has increased in recent decades (Wellings, Collumbien, Slaymaker, Singh, Hodges, Patel and Bajos, 2006; Poobalan, Pitchforth, Imamura, Tucker, Philip, Spratt and van Teijlingen, 2009). Nevertheless, there are very few literatures in the area of young people's sexual health in many South Asian countries, including Nepal (Regmi, Simkhada and van Teijlingen, 2008). Relevant literature on young people's sexual health suggests that most research has been conducted around knowledge and attitudes towards sexual and reproductive health, including HIV/AIDS, sexual behaviour and the utilisation of sexual health services (Neupane, Nichols and Thapa, 2003; Stone *et al*., 2003; Mahat and Scoloveno, 2006; Upreti, Regmi, Pant and Simkhada, 2009). However, the UNESCO Nepal (2009) report clearly indicated that the effectiveness of sex education curricula in Nepalese schools is lacking.

According to Acharya, van Teijlingen and Simkhada (2009), young people are becoming more sexually active than their parent's generation. This is because in the globalised world, the sharing of information is rapidly taking place (*ibid.,* 2009). So, it is essential to look at what strategies could help young people acquire greater knowledge and understanding of sexual health issues. This chapter highlights the different work previously done on sex education, and sexual health knowledge and behaviour among young people, with a further focus on school-based sex education.

2.2 Literature search strategy

A narrative review method was adopted for the review of the literature. Collins and Fauser (2005) emphasised that this method is considered the most suitable for comprehensive subject matter such as sexual and reproductive health. This study searched Medical Subject Heading (MeSH) terms and combinations of key words from the relevant articles. MeSH is a comprehensive vocabulary used for indexing journal articles and books in the health sciences (National Library of Medicine, 1960). Primary searches were focused on young people's sexual health and their understanding of sexual health issues. The following terms were searched for this review; young people, adolescent, opposite sex, mass media, school-based, condom, sexual health, barriers, reproductive health, teacher-led, health facilitator-led, peer education, developing countries, Nepal and sexual culture. Electronic databases such as Science Direct, Swetswise, ERIC, Scopus, EMBASE and Google Scholar were used to search the literature.

2.3 Background of the study

Young people comprise a significant part of today's population. There are approximately 1.25 billion 10 to 19 year old young people on the planet, of which 83% live in developing countries (WHO, 2009). They represent the future families, communities and nations in all countries. However, they are vulnerable to a range of reproductive health problems, including early pregnancy and childbearing, unsafe abortion, HIV/AIDS and STIs, gender-based violence, sexual assault and rape (*ibid.*, 2009). Traditionally, they are not considered as a health priority because their morbidity and mortality rate is lower than that of older and younger people (Bayley, 2003; UNESCO Nepal 2009). In 2004, the World Health Organisation estimated that

2.6 million young people in the 10 to 24 age range died largely in accidents, through violence, or as a result of complications from pregnancy (WHO, 2004). The report highlighted that around 97% of these deaths occurred in low and middle-income countries (*ibid.*, 2004).

According to UNAIDS (2007) young people represent about 50% of all HIV infection cases worldwide, yet a third of them are not even aware of this threat to their lives. The long incubation period of HIV infection and the asymptomatic nature of some Sexually Transmitted Infections (STIs) mean young people are infecting one another without knowing it (Eng and Butler, 1997; Bird and Bogart, 2005). Despite the largest number of young people being in developing countries, very little is known about their knowledge of sexual health, or their experiences (Frost and Forrest, 1995; Hughes and McCauley, 1998; UNAIDS, 2012).

It is important to know the underlying issues about young people's sexual health knowledge and their risk-taking behaviour. If young people are self-conscious in the use of sexual health services, then the importance of sexual health education within schools is more pronounced (Regmi *et al.*, 2008). However, there are wide variations and standardisations in school-based sexual health education (Butler and Solomon, 2002). Schools differ not only by the topics covered, but also by the teaching method, the training for teachers, the level of student participation, the age at which topics are taught, and the role of the teacher (Graham, Moore, Sharp and Diamond, 2004).

A previous report of WHO (2006a) elaborated on how young people undergo rapid physical and psycho-social changes when they move from childhood to adulthood in their second decade. During this period, they are characterised by many rapid, interrelated changes of body, mind and social relationships. They also gain new experiences, acquire new capacities and face many new situations and challenges. It is also a time of behavioural experimentation that shapes how they will live their future lives as men and women in society (*ibid.*, 2006a). During their development to adulthood, young people are challenged to make decisions and choices about their sexual lives. Some decisions are acceptable, while others could impede the accomplishment of their personal and social goals. This may lead to the risk of unwanted pregnancies, sexually transmitted infections and unsatisfactory or coerced early sexual relationships (Social Exclusion Unit, 1999; Singh and Darroch, 2000). Such risks are likely to have risen as a result of a lack of adequate information and a lack of skills necessary to make responsible, informed choices and to take proper actions (Wight, Raab, Henderson, Abraham, Buston, Hart and Scott, 2002).

Therefore, it is vitally important that young people receive education regarding their behaviour, their stages of development, health issues and the barriers and challenges to health within their environments. Proper information and youth-friendly Sexual and Reproductive Health (SRH) services could help them to understand their sexuality and guide them in protecting themselves from significant sexual health risks. The 5th International Conference on Population and Development (ICPD) in Cairo clearly expressed that:

> Reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes.
>
> (UNFPA, 2004: 40)

It emphasised that young people both in and out of school should be given the opportunity to acquire accurate SRH information, build skills for responsible decision-making, obtain counselling services and access youth friendly confidential SRH services (*ibid.*, 2004).

Sex education is a lifelong process whereby young people obtain knowledge and skills to develop beliefs, attitudes and values about their sexuality and relationships within an ethical context (Scottish Executive, 2006). Economic, cultural and social influences are all associated with the sexual well-being of young people and sex education should contribute to the physical, emotional, moral and spiritual development of young people within the context of today's society (*ibid.*, 2006). Schools are one of the institutions that young people regularly attend and gain education in sex and sexuality at different developmental stages (Kirby, Short, Collins, Rugg, Kolbe, Howard, Miller, Sonenstein and Zabin, 1994).

Reeves, Whitaker, Parsonage, Robinson, Swale and Bayley (2006) have concluded that young people prefer to obtain sex education in secondary schools. Other studies have also indicated that school-based sex education could prevent unwanted pregnancy and promote sexual health at the individual, family and community level (Saito, 1998; Butler, 2004). Sex education could also encourage a sensible and

healthy behaviour that could delay the introduction to sexual experimentation to young people (Meyrick and Swann, 1998; van Teijlingen, Reid, Shucksmith, Harris, Philip, Imamura, Tucker and Penney, 2007).

Sex education was fiercely debated in the UK during the 1980s and became the subject of acrimonious debate in the UK parliament (Jones, Darroch, Goldman, Henshaw, Lincoln, Rosoff, Westoff and Wulf, 1985). Afterwards, much attention was given to the poor state of sex education in British schools (Adler, 1997; Grunseit, Kippax, Aggleton, Baldo and Slutkin, 1997; Nicoll, Catchpole, Cliffe, Hughes, Simms and Thomas, 1999). Government guidance and research recognises young people as a particularly vulnerable group whose knowledge about sexual health affects their sexual behaviour and risk taking (Cowan, 2002).

2.4 Sexual behaviour of young people in developing countries

Research into sexual health behaviour among young people has developed rapidly during the past two decades because of the increasing prevalence of HIV and AIDS (Wellings *et al.*, 2006; van Teijlingen *et al.*, 2007). With the advent of HIV and AIDS, sex and sexuality issues became a main public health problem, so discovering people's sexual health attitudes, beliefs and behaviour has become critically important (Bhugra, Mehra, De Silva and Bhintade, 2007).

The majority of sexual-health related research is epidemiological in nature and much research has been designed to look at specific sexual health behaviours (Phillips, Gomez, Boily and Garnett, 2010; van Griensven and van Wijngaarden, 2010; Lim, Hocking, Aitken, Fairley, Jordan, Lewis and Hellard, 2012). Earlier

studies used a range of models to investigate what factors relate to the age at which sexual activity is initiated (Ezhilarasu, 2001). Behavioural factors correlate to pubertal development and leisure activities, as well as to social environment, such as the influence of family, peers and institutions (*ibid.*, 2001).

Masters, Beadnell, Morrison, Hoppe and Gillmore (2008) have argued that it is now widely considered that sexual activity could have both positive and negative consequences. However, some Nepalese studies show that the number of STIs and unwanted pregnancies is high among young people and the reason for this is that they frequently involve in unsafe sexual behaviour (Dahal, 2008; Acharya, Bell, Simkhada, van Teijlingen and Regmi, 2010; NCASC Nepal, 2011). A previous study has also documented negative outcomes of sexual activities at a young age, such as STIs, HIV and unintended pregnancies (Collins, Elliott, Berry, Kanouse, Kunkel, Hunter and Miu, 2004). This suggests that unsafe sexual behaviour at an early age leads to more risks.

In South Asia, parents have a general perception that adolescents and unmarried individuals rarely engage in sexual relationships (Jejeebhoy, 1998; George and Sabarwal, 2013). However, it is now commonly recognised that a key period of sexual exploration and development happens during adolescence (Tamang, Nepal, Puri and Shrestha, 2001; Saewyc, 2011). There are also indications that a growing number of unmarried young people are sexually active in this region (Pachauri and Santhya, 2002; Puri and Busza, 2004). Consequently, many health professionals, public health researchers, educationalists and policy-makers have shown considerable interest to understand young people's initiation to risky sexual

behaviour (Adhikari and Tamang, 2009). Wellings *et al.* (2006) suggested that early initiation is more likely to be non-consensual, is less likely to involve protection against unplanned pregnancy and infection, and furthermore, that it is associated with a greater number of sexual partners.

Many factors have previously been reported, such as earlier onset of sexual maturation, peer pressure, increasing socio-economic problems, glamorisation of sex and delaying marriage, which directly or indirectly influence sexual activity among young people (Isarabhakdi, 2000; Akker and Lees, 2001; Bhui and Goodson, 2007; Dahal, 2008). Additionally, previous studies have also shown that sexual behaviour has been linked to psychological problems. For example, an Italian study described that sexually active girls had higher levels of depressive symptoms than girls who were not sexually active (Ciairano, Bonino, Kliewer, Miceli and Jackson, 2006). This suggests that it is essential to understand what the motivators are for initiating sexual activity prematurely. Understanding these motivators would allow service providers and health educators to develop more effective interventions to address these problems.

In the past, many studies (Dahal, 2008; Regmi *et al.*, 2008; Adhikari and Tamang, 2009) have examined the sexual behaviour of general and high-risk populations and one of the most notable features of these studies is the gender difference in sexual behaviour. A World Health Organisation report (2006b) has shown that women from many developing countries have their first sexual intercourse at an early age compared to men. For example, girls' median age at first sexual intercourse was reported as 15.5 years in Cameroon and Mali, 16.5 years in Nepal, Malawi and

Tanzania and 17.5 years in Kenya and Senegal (*ibid.*, 2006b).

2.5 Young people's sexual health knowledge and behaviour in Nepal

The National Survey Report has shown that a large proportion (37%) of the Nepalese population is under the age of 15 and the population of 15 to 19 year olds is 10.5% (NDHS/New Era Nepal, 2011). The concentration of the population is high in the 10 to 14 years age group (13%), which shows a high demand for schooling and adolescent care in the future (*ibid.*, 2011). These figures show that young people comprised of a large section of Nepalese population; they also show the steady growth of the youth population. For example, the population of young people aged (15 to 24 years) will grow from 4.8 million in 2000 to an estimated 6.9 million in 2020, an increase of 30% in just 20 years (Pradhan and Strachan, 2003).

The report (NDHS/New Era Nepal, 2011) highlighted that the percentage of unmarried young women and men has increased in the past 10 years. Among women aged 15 to 19 years old, this proportion grew from 60% in 2001 to 71% in 2011, while among men it increased from 89% to 93% (*ibid.*, 2011). Similarly, the percentage of women married by age 15 declined from 24% to 5% (*ibid.*, 2011). The report further emphasised that the gender composition of secondary school leaving pupils is unbalanced, with girls representing less compared to boys (*ibid.*, 2011). This demonstrates that girls' education should receive priority and greater attention, so that they could live healthier and happier lives. It is a well-understood and documented fact that education has a critical part to play in changing behaviour of the young people (Aryal and Adhikari, 2003).

According to Pantha and Sharma (2003), a significant proportion of Nepal's population is young. However, research on young people in Nepal is still relatively new. Literature about sex and sexuality in the context of Nepal is rare, which is not unexpected in a society where sexual matters are still considered taboo (Mathur, Malhotra and Mehta, 2001; Dahal, 2008, Simkhada, van Teijlingen, Regmi and Bhatta, 2010). The reality is that there are very few studies conducted in Nepal that provide an in-depth view of the sexual behaviour among young people (Tamang *et al.*, 2001; Puri and Busza, 2004; Adhikari and Tamang, 2009).

Nepalese society views sexuality as a taboo subject and it is generally acknowledged that sexual activities outside marriage are unacceptable (Mathur *et al*., 2001). Smith (2002) has clearly noted that pregnancy outside marriage in Nepal is catastrophic. Girls who are involved in such activity become unmarriageable unless an immediate marriage could be arranged. Despite this, many studies show that a large number of young people get involved in pre-and extra-marital sexual activities (Tamang *et al.*, 2001; Adhikari and Tamang, 2009).

A recent National Survey Report (NDHS/New Era Nepal, 2011) on higher-risk sex (sexual intercourse with a partner who is neither a spouse nor a cohabiting partner) indicates that <1% of women and 3% of men had two or more sex partners in the last twelve months of the study. Another study among male college students (16 to 19 years) in Kathmandu showed that more than half of the respondents (57%) had experienced kissing, while more than a third (35%) reported that they had placed their hand on a girl's genitalia (Adhikari and Tamang, 2009). Almost 40% of men in this study reported pre-marital sex (*ibid.*,

2009). This suggests that Nepalese young people start the practice of sexual activities at an early age and this trend shows that the prevalence of pre-marital sex among young people has increased remarkably in recent years.

According to Dahal (2008), the opportunities for pre-marital sex for young people have increased, due to a delay in marriage caused by young people pursuing educational and employment goals. A comparative study on 14 to 19 year old young people's sexual activities stated that only 15% of Nepalese young boys involved in pre-marital sexual intercourse, which was also lower than other Asian countries such as Thailand (40%) and Philippines (31%) (Choe, Hatmadji, Podhisita, Raymundo and Thapa, 2004). The prevalence of pre-marital sex among Nepalese young people has raised a question, i.e. who are the partners in their pre-marital sexual relationships (NDHS/New Era Nepal, 2006; Adhikari and Tamang, 2009)? One possible explanation for this gender difference in the reported prevalence of pre-marital sex is that these boys may have visited female sex workers (Regmi, Simkhada and van Teijlingen, 2010). It is also possible that girls in sex-related surveys have under-reported their pre-marital sexual activities (Moore, Awusabo-Asare, Madise, John-Langba and Kumi-Kyereme, 2007; Adhikari and Tamang, 2009) and boys have exaggerated their sexual activities (Brewer, Potterat, Garrett, Muth, Roberts, Kazprzyk, Montano and Darrow, 2000).

Research conducted on young people's sexual behaviour has often focused on identifying significant factors such as peer pressure, parental involvement, drug use and multiple partners, which could lead to risky sexual behaviours (Han, Choe, Lee and Lee, 2001; Puri and Busza, 2004). Many young people in Nepal are also

vulnerable to unsafe sex due to their risk-taking behaviours. For example, limited routine studies (NDHS/New Era Nepal, 2011) and research reports (Dahal, Hennink and Hinde, 2005; Acharya *et al.,* 2009) have documented that a significant number of Nepal's young people are at risk of HIV, engage in high-risk behaviour and have high adolescent fertility.

Marston and King (2006) argued that young people's sexual behaviour is mainly affected by cultural and financial factors. The National Survey Report (NDHS/New Era Nepal, 2011) suggested that there has been a steady rise in the prevalence of modern Nepalese contraceptive rates; however, the level of use is still low. Regmi *et al.,* (2010) have argued that the low level of contraceptive use among young people is due to cultural barriers, unemployment and lack of proper knowledge and skills. Among the age group 15 to 24, only 26.9% of women currently use any modern contraceptive methods, although married women in this age category have a higher contraceptive prevalence (41.6%) (NDHS/New Era Nepal, 2011). It likewise shows that a majority of Nepalese youth are not using contraceptives of any kind; this lack of contraceptive use adds to the high rates of pregnancy amongst adolescents (*ibid.,* 2011).

2.6 Practice of school-based sex education

In Nepal early marriage, low social status and poverty is directly related to the lack of education (Waszak, Thapa and Davey, 2003). The National Survey Report suggested that the age of beginning of puberty is declining and the age of the marriage is increasing (NDHS/New Era Nepal, 2011). Sex education is considered as a taboo subject in many areas of the Nepalese society (Bhadra, 1999). Nevertheless, many young people are considered sexually active before marriage, and this could be due to

the open culture of modernisation (Regmi *et al.,* 2008). In the past, policies remained unclear in Nepal with regard to sex education which has had a direct impact on adolescent sexual behaviour (*ibid.,* 2008). However, a National Adolescent Health and Development strategy was implemented in 2000 (MoH Nepal, 2000; Campbell, Reerink, Jenniskens and Pathak, 2003; Pradhan and Strachan, 2003). Based on this strategy, sex education is taught to the pupils at the Nepalese secondary school level using Health, Population and Environment (HPE) textbook.

Karki (2004) argued that the standards of teaching sexual health in Nepalese schools are very poor and it is related with teachers' embarrassment, lack of knowledge and poor teaching methods. Another more recent study also revealed that teachers are confused, as existing sex education are insufficient to address young people's needs (Pokharel *et al.,* 2006). In Nepalese schools, students' sex education knowledge and understanding is assessed via exams unlike to the developed countries such as the UK (Stone *et al.,* 2003). The Nepalese schools overlook the broader issues such as feelings and relationships and focus more on easily taught factual and biological issues (*ibid.,* 2003). Some Nepalese schools also involve health professionals and experts to deliver sex education programmes, with support from Non-Government Organisations (NGOs) (Acharya *et al.,* 2009). However, NGOs and schools lack coordination and cooperation; they do not share their evaluation report with one another about areas that could be improved (Pokharel *et al.,* 2006; Acharya *et al.,* 2009).

There has been very few research conducted to explore the effectiveness of sex education in Nepal, excluding some pilot studies (Prasai, 1999; Pokharel *et al.,* 2006). Reports have suggested that a significant number of Nepalese young people

are involved in unsafe sexual activities (Sanzero and Mahat, 2003; Dahal *et al.*, 2005). However, it is not known to what level this reported sexual activity of young people represents all the young population. The majority of Nepalese schools also lack a strategy to conduct research and evaluation in the area of sexual health (Pokharel *et al.*, 2006). In such circumstances, schools are not able to evaluate sex education programmes (Pokharel *et al.*, 2006; van Teijlingen, Tucker, Philip, Spratt, Poobalan, Pitchforth, Imamura, Forbes and Vascianovich**,** 2008).

According to Pokharel *et al.* (2006), Nepalese schools require support to review their sex education programmes; likewise, they need support in evaluating the appropriateness of the programmes to all stakeholders. Many schools and research institutes prefer to conduct sex education review; however, there are limited resources available to do so (Regmi *et al.*, 2008). Consequently, the government and research funders should invest in sex education evaluation to address how young people could be encouraged to have fulfilling relationships and live a healthier sexual lifestyle (*ibid.*, 2008).

A recent report by HMIE (2008) documented that effective schools deliver a good quality of sex education to the young people. Therefore, self-evaluation on sex education is an important tool to gather evidence to make evaluative judgements (Social Exclusion Unit, 1999). It is critical to have a good quality evaluation report that could help policy-makers to understand the requirements of sex education. This report could also help schools to identify the kinds of support they require from local communities and authorities to develop their policies (Scottish Executive, 2006). The global media has played an important role to inform and transfer the best practices of

school-based sex education (*ibid.*, 2006). However, the government should explore how to fit such practices suitably into the Nepalese context. Therefore, more experimental research is required to explore effective and beneficial school-based sex education content. The World Health Organisation has clearly stated that:

> One of the most important commitments a country can make for future economic, social and political progress and stability, therefore, is to address the sexual and reproductive health needs of its young people. It is a sound investment for the future.
>
> (WHO, 2006a: 1)

Young people make up a significant proportion of each country's population and their role is important to each country's economy (WHO, 2006a). The above statement clearly highlights that an improvement in the sexual and reproductive health of young people reduces the likelihood of teenage pregnancy and reduces its social and economic costs. Late marriage and well-timed parenthood allow young people the chance for further educational achievements and thus greater career and employment opportunities.

2.7 Key themes

From the literature review the following key themes emerged, which are discussed in detail as follows:

- 2.7.1 Teenage pregnancy and complications
- 2.7.2 Sexually Transmitted Infections (STIs) and HIV/AIDS
- 2.7.3 Peer pressure and sexual violence/abuse/harassment
- 2.7.4 Sources of sexual health information and skills in sexuality

2.7.5 Parental and community support

2.7.6 Partnership with external agencies and sexual health services

2.7.7 School-based sex education programme

2.7.8 Peer-led versus health facilitator-led sex education in school

2.7.9 Policy and practices in school sex education

For each of the above listed key themes, a summary of the issues is provided that proceeds to identify the emerging research questions.

2.7.1 Teenage pregnancy and complications

Teenage pregnancy is a public health concern in both the developed and developing world (Johnson, Myors and Langdon, 2001; Chedraui, Hidalgo, Chavez and Glenda, 2004; Lawlor and Shaw, 2004). Worldwide, complications in pregnancy are the number one killer of girls and young women aged 15 to 19 (WHO, 2012). Every year 50,000 teenage girls and young women die during pregnancy or childbirth, in many cases because their bodies are not ready to bear children (*ibid.,* 2012). Babies born to young mothers are also at higher risk than those whose mothers are older. Each year around one million babies born to adolescent girls die before their first birthday (*ibid.,* 2012).

Many adolescent girls know little or nothing about family planning (*ibid.,* 2012). Their low status within their families, communities and societies means they lack the power to make their own decisions about whether or when to have a baby (*ibid.,* 2012). Young girls are also at risk of unwanted pregnancies, Sexually Transmitted Infections (STIs) and unsatisfactory or coerced early sexual relationships (Singh and

Darroch, 2000; Wight *et al.*, 2002). Early teenage pregnancy rates have not significantly changed in developing countries, especially in South Asia, despite a large effort (WHO, 2012). A variety of reasons include lack of knowledge, lack of confidence to resist pressure, access to media such as televisions, videos, internet and pornography magazines, poor access to advice and support, and low aspirations (*ibid.*, 2012).

Early pregnancy is fundamentally linked to the practice of early marriage (WHO, 2012). An estimated 10 million girls under 18 years old are married every year, which is the equivalent of more than 25,000 every day (*ibid.*, 2012). The percentage of girls aged 15 to 19 who are married is 46% in Bangladesh, 59% in Central African Republic and 30% in India (*ibid.*, 2012). The rate is much lower for boys and is often not recorded. Only 5% of boys of the same age are married in India (*ibid.*, 2012). Early marriage has an impact on the age at which girls become sexually active and, without contraception, married adolescent girls are more likely to have early and frequent pregnancies before their bodies are physically mature enough to cope with childbirth (*ibid.*, 2012).

A UNFPA (2009) report described how adolescent girls entering into marriage below the age of 18 have more limited access to contraception and family planning services than older women. The report further highlighted that only 47% of South Central and South East Asian married women aged 15 to 49 use modern contraceptives, although a higher proportion want to avoid pregnancy sooner. This low level of contraceptive use may be caused by a number of factors. These may include social pressures to have children early following marriage, an inability to discuss family planning with

anyone, and fear of a husband who is older and who makes decisions and controls the family finances (*ibid.*, 2009). These factors could be intensified by an absence of health workers who could provide the family planning services to young people.

Therefore, a great deal of serious work is required that should include strategic players such as leaders, coordinators of public health policy and those who work in schools. The work should also involve youth services and clinics for sexual health. For conceptions that end in teenage pregnancies and births there are often also other costs (DoH, 2010). These include markedly worse outcomes for children's health, degraded emotional health for mothers and an overall decrease in their well-being; it could also lead to the increased likelihood that children, as well as their teenage parents themselves, would end up impoverished (*ibid.*, 2010). All these factors contribute to health inequity and the impoverishment of children (*ibid.*, 2010). Therefore, it is essential to develop a strategy so that all young people could obtain required sexual health information, advice and support they need from their parents, teachers and other professionals. This would give them the opportunity to enjoy positive and caring relationships and to experience good sexual health. Also, they would have the ability to access contraceptives and have adequate knowledge to use them properly when they do decide to engage in sexual activity.

Worldwide, about 16 million girls aged 15 to 19 and two million girls under the age of 15 give birth every year (WHO, 2011). This means, one in five girls has given birth by the age of 18. In developing countries, this figure rises to over one in three (*ibid.*, 2011). A majority of adolescent births (about 95%) occur in low- and middle-income countries and are more likely to occur among poor, less educated and rural

populations (*ibid.*, 2011). In poor countries, young women still suffer from unintended pregnancies, HIV and other Sexually Transmitted Infections (STIs) and from maternal death and disability (*ibid.*, 2011).

In the UK, the teenage pregnancy rate is the highest compared to other Western European countries; two times as high as Germany, three times as high as France and six times as high as the Netherlands (FPA, 2010). In Wales, according to the Office for National Statistics (2013), 34 girls out of every 1,000 became pregnant under the age of 18 in 2011 compared to around 45 per 1,000 in 2001. Teenage pregnancy rates across England also fell by more than 27% during the same period (*ibid.*, 2013). Despite the fall, the conception rate for under 18s remains higher in Wales than in England (*ibid.*, 2013). However, Ceredigion has one of the lowest teenage conception rates in Wales (NHS Wales, 2011). Through the various initiatives such as school councils, youth forums, committees and specific projects, children and young people in Ceredigion are being encouraged to make their voices heard about the services provided to them (*ibid.*, 2011).

It is important to know that not all teenage pregnancies are unwanted or unintended (Social Exclusion Unit, 1999). Some pregnancy outcomes could be positive for both mother and child (*ibid.*, 1999). However, there are also some negative aspects of teenage pregnancy:

- Teenage mothers tend to have poor antenatal health, lower birth weight babies and higher infant mortality rates. Their own health and their children's is worse than average.
- Relationship breakdown is more common among teenage parents.

- Teenage parents usually have low incomes and single teenage mothers are more likely to be dependent on benefits than other single mothers.
- Teenage mothers' daughters have a greater likelihood of becoming teenage mothers themselves.

(Social Exclusion Unit, 1999: 7)

It is reported that these negative outcomes are more related with the poverty rather than teenage parenting (Social Exclusion Unit, 1999). Sex is an important part of human relationships; having children is a celebratory event in many cases. However, for a significant number of young people this is not the case (FPA, 2010). Millions of adolescents across the world put their health and their lives in jeopardy as a result of unsafe sex practices and by bearing children too early (WHO, 2011).

Nepal has a high proportion of teenage pregnancies owing to the fact that early marriage is common and there is a social expectation to have a child soon after marriage (Mathur, Mehta and Malhotra, 2004). Teenage pregnancy could have a significant effect on women's levels of educational attainment, their marital stability, social and financial independency and employment (Kirby and Coyle, 1998). Structural and social inequalities, lack of effective sex education, poverty and gender difference makes young people more susceptible to teenage pregnancy (Khandait, Ambadekar, Zodpey and Vasudeo, 2000; Rashid, 2006).

Some Nepalese studies have looked at the involvement of teenage girls in decision making towards pregnancy. One study (Shrestha, 2002) explained that 80% of adolescent marriages in Nepal are arranged by parents without the girls' consent. The authority over conception remains with their husband regardless of the teenager's

desire to make her own decisions (Sharma, Verma, Khatri and Kannan, 2002). Teenage girls do not visit health service centres without their husband's permission (Ganatra and Hirve, 2002). Pre-term delivery, stillbirth, Pregnancy-Induced Hypertension (PIH) and spontaneous abortion are frequently reported medical complications among teenage girls (Sharma *et al.*, 2002). Studies suggest that lower access to higher education, premature death of women, high divorce rates, growing population, weak and unhealthy children and single parenting are the negative outcomes of teenage pregnancy (Sharma, Verma, Khatri and Kannan, 2001; Pathak, Singh, Kapil and Raghuvanshi, 2003). Young people face a higher risk of complications and death because of pregnancy (WHO, 2012). Globally, many women are not using contraception effectively; however, many of them said that they wanted to delay or prevent pregnancy (UNFPA, 2007). Some of the reasons for not using the contraceptives are no access to it, fear the side effects, or face objections from the family and friends (*ibid.*, 2007)

Many adolescent girls know that their own earnings are the best vehicle for a better future and are the main basis of authority in domestic relationships (Mathur *et al.*, 2004). These young women clearly know that economic independence is an important element in a confident self-image and in the ability to ratify positive life choices (*ibid.*, 2004). Even for a married woman, bearing a child too early can disempower her. Particularly for unmarried adolescent women, bearing children truncates their education, negatively impacts their income potential and hinders their capacity to make good life decisions (UNFPA, 2007). Also, young men who take on parenting roles early in life often cut short their formal education, which negatively impacts on their life chances (WHO, 1998).

A Department of Health (DoH, 2010) UK report described how the children of teenage mothers have a greater chance of experiencing an array of bad outcomes later in their lives and have a greater likelihood of becoming, themselves, teen parents. In instances where women of a young age decide to carry their pregnancies to term, there is a significant likelihood that they would experience an array of bad outcomes (*ibid.*, 2010). For example:

- Mothers who are teens are less likely to complete formal education and have a greater likelihood of raising their child on their own, in impoverished circumstances.
- For babies of teenage mothers there is a 60% increase in the rate of infant mortality compared to babies of more mature mothers.
- Teenage mothers' children typically face a greater likelihood of experiencing poverty and the level of their educational achievement suffers as well.

(Department of Health, 2010: 16)

Teenage pregnancy causes inequities in health; it also causes inequities in the rates of child poverty (*ibid.*, 2010). Because of this, it is important that stakeholders, schools and parents recognise that putting energy and resources into ways to bring about a reduction in teenage pregnancies could help young people attain their future goals in later life.

2.7.1.1 Summary

Teenage pregnancy is a public health concern in the developing world. It increases the chances that teenage parents and their children would live in poverty and

contribute to health inequalities and child poverty. Having a child in the teenage years significantly affects young people's level of education, employment opportunities and marital stability. Women's limited power in decision-making also increases their dependency on their husbands when seeking any sexual and reproductive health services they need. So, there is a need to develop strategies to tackle young people's high teenage pregnancy rates and poor sexual health outcome. In this context, parental and professional involvement is very important, as they could provide young people with opportunities to share their feelings and to develop the skills and confidence to deal with sex and relationships.

Emerging research questions:

- Do the media, custom and culture encourage young people to become involved in early sex?
- What strategies can help, particularly young girls, to reduce the rate of teenage pregnancy and its complications?

2.7.2 Sexually Transmitted Infections (STIs) and HIV/AIDS

Sexual health is linked to many causes of death, disability and ill health, and unsafe sexual activity is a major threat to young people's health and their survival. Sexually Transmitted Infections (STIs) are those, which are spread principally person-to-person via sexual activities. There are more than 30 distinct viruses and bacteria that can be transmitted from one person to another person (WHO, 2008). Gonorrhoea, Chlamydial infection, Syphilis, Trichomoniasis, Chancroid, Genital herpes, Genital warts and Human Immunodeficiency Virus (HIV) are some of the most common forms of STIs (*ibid.,* 2008). HIV and Syphilis can be easily transmitted from mother-

to-child during pregnancy and childbirth (*ibid.,* 2008). Globally, on an annual basis, one out of every twenty adolescents contracts an STI that is treatable (*ibid.,* 2008). On a daily basis, more than 6,500 young people from ages 10 to 24 become STI infected; this is roughly 5 per minute (*ibid.,* 2008).

Adolescents have a lesser likelihood of using condoms than adults (WHO, 2008). This is due to their inability to access them, or their inability to demand condoms be used. Thus, they are at high risk of contracting an STI (*ibid.,* 2008). Four types of STI are most prevalent and these can be cured - Chlamydia Trachomatis, Neisseria Gonorrhoea, Treponema Palladium (Syphilis) and Trichomonas Vaginalis (*ibid.,* 2008). The total number of new cases of these four STIs in 2008 in adults between the ages 15 to 49 was estimated to be 498.8 million: 105.7 million cases of Chlamydia Trachomatis, 106.1 million cases of Neisseria Gonorrhoea, 10.6 million cases of Syphilis and 276.4 million cases of Trichomonas Vaginalis (*ibid.,* 2008).

According to UNAIDS (2010), there were 2.6 million new HIV infections in 2009 and young people aged 15 to 24 made up 40% of all new HIV infections, which is a disturbing picture. Increasingly, children already infected at birth grow into adolescents who have to deal with their HIV positive status. Young people's age of sexual debut and risk of HIV infection is closely correlated (*ibid.,* 2010). Delayed initiation of sexual practice and abstinence from sexual activities should be the main aim of HIV prevention programme for young people. Increasing access to the comprehensive prevention services that includes prevention education and access to condoms, and decreasing the number of sex partners is crucial for sexually active young people (*ibid.,* 2010).

Dahal *et al.* (2005) has argued that nearly 25% of Nepalese young people who are sexually active and unmarried involve themselves in sexual practices, which is deemed to be risky. According to Thapa, Davey, Waszak and Bhadra (2001), Nepalese HIV/AIDS and STIs situation is a matter of concern. This is the case, even though awareness and understanding surrounding STIs and HIV/AIDS seems reasonably strong among the young people (Aryal and Nichols, 2002; Neupane *et al.*, 2003)). The greatest measures for preventing STIs and HIV are knowledge, in-depth information regarding healthy sexual behaviour and a reduction in pre-marital, as well as extra-marital sex (Thang, Huong and Blanc, 2002). Nevertheless, the instability of Nepalese politics and the country's high levels of poverty together with issues surrounding gender inequity, alongside a general lack of proper education, have rendered the job of preventing HIV/AIDS and STIs complex and difficult (World Bank, 2006).

Nepal is experiencing an increase in the incidence of HIV infection and sexual behaviour has been inadequately researched among the young population (UNAIDS, 2012). An estimated 64,000 adults and children in Nepal were living with HIV by the end of 2009 (up from 60,000 in 2001), of whom 20,000 were women age 15 and older (NCASC Nepal, 2011). There has not been much change in the comprehensive knowledge of HIV/AIDS prevention among men and women over the past five years (*ibid.*, 2011). In 2011, only 21% of women and 30% of men age 15 to 49 had a comprehensive knowledge of HIV/AIDS prevention (NDHS/New Era Nepal, 2011). This clearly suggests that government and non-government organisations need to do much more to increase awareness of HIV/AIDS among the public. Like other

developing countries, transmission of HIV in Nepal is driven by factors such as poverty, low literacy levels, low levels of condom use, cultural and religious factors, stigma and discrimination (*ibid.*, 2011).

Stone *et al.* (2003) have highlighted that because of inhibitions and socially and culturally held taboos; research on the sexual health of young people is limited to only a few studies, particularly for unmarried people. Furthermore, much of the hitherto limited research with young people remains unpublished (*ibid.*, 2003). Engaging in sexual behaviours that are safer, and delaying engaging in one's first sexual experience are both keys to limiting young people's risk exposure to STIs and HIV/AIDS. Although adolescents and young people comprise a significant proportion of the total population in Nepal (please see Section 2.5), their sexual behaviours, especially their formation of sexual partnerships, how they negotiate sex and how they decide to handle the risk of STIs and HIV/AIDS are poorly understood.

In Wales, the awareness of HIV transmission risks is high among adults and young people but the prevalence of HIV/AIDS is continuing to increase (Welsh Assembly Government, 2010). Most of these young people think that they have received too little education on STIs and HIV (*ibid.*, 2010). It is documented that many young people are aware of the importance of condoms in preventing infection, however boys who described having had sex seemed to have a less confident towards condom use (Roberts, Blakey and Smith, 1994). Moreover, the rate of teenage pregnancy and STIs and HIV is a matter of concern in Wales (Welsh Assembly Government, 2010). Thus, a Welsh Assembly Government (2010) report has suggested a more effective

communication about sexual health is to be established, if the issues are to be addressed successfully.

It is observed that the programmes, which focus at one risk factors or attempt to change certain behaviours have met with only limited achievement; often, knowledge and awareness have improved, but it has confirmed more difficult to attain changes in behaviour (Senderowitz, 2000; Sandoy, Michelo, Siziya and Fylkesnes, 2007). Thus, a more holistic approach should be designed to observe a range of antecedents of sexual health behaviour (Steenbeek, 2004). This could be included of the information about suitable age for marriage, communication with parents, importance of schooling, making partners and the system to keep young people healthy (Senderowitz, 2000; Catalano, Oesterle, Fleming and Hawkins, 2004). The impacts in terms of culture and psychology should also be examined, as well as the implementation of efficacious interventions (Catalano *et al.*, 2004).

2.7.2.1 Summary

The majority of HIV/AIDS and STIs infected young people in Nepal are reported as having practised risky sexual activities. Gender inequity and poor education have both, likewise, contributed to the difficulty of HIV/AIDS and STIs prevention. Much of the HIV/AIDS and STI related sexual health research has been limited to small numbers, since social and cultural taboos have inhibited wider studies. As a result, young people's sexual health knowledge and behaviours, the formation of sexual partnerships and the process of sexual negotiation and decision-making in relation to the risk of STI and HIV/AIDS are not explored. Likewise, feelings of responsibility within partnerships have been poorly studied in Nepal. Therefore, there is an urgent

need to develop an effective strategy that could promote safer sexual behaviours to avoid the risk of STIs and HIV/AIDS among young people.

Emerging research questions:

- Are Sexual and Reproductive Health (SRH) services and information available to young people?
- What is the optimal strategy for overcoming the issue of HIV/AIDS and STIs infection amongst Nepalese young people?

2.7.3 Peer pressure and sexual violence/abuse/harassment

Young people have encountered new challenges to improve their sexual lifestyle in today's modern society. The internet has provided them with the opportunity to learn about relationships and sexual health in new and creative ways (Regmi *et al.*, 2008). Within the last several years, the access that young people have to pornography and their exposure to other content of a sexualised material has seen a marked increase (DoH, 2010). There are a number of other new technologies that have also played a part in this. These include mobile phones, which could be used both to transmit sexually explicit information and for influencing peers (*ibid.*, 2010). Such kinds of activities may lead young people to become involved in premature sexual activities, including sexual harassment. Therefore, high quality information, and advice and support are necessary to help young people to resist the pressures to have sex before they feel ready. It would also assist them in recognising the vital role that mutual consent and respect play in relationships and help them to separate myths from facts (*ibid.*, 2010).

According to the Department of Health (2010) report, in the UK there is evidence to support that the age of first sexual intercourse for men and women is falling. The report further highlighted that a majority of young people had sex under the age of 16 than older people (*ibid.,* 2010). A health behaviour related study conducted among school-aged children in 34 European and North American countries showed that Wales had one of the highest proportions of 15 years old reporting having had sexual intercourse, boys (41%) and girls (30%) (Welsh Assembly Government, 2010). This data highlights marked differences in sexual behaviour between Wales and European countries, particularly for school going children.

For many young people, sex is linked with coercion, violence and abuse (Mathur *et al.*, 2004). Sometimes it is associated with members of the family or adults who have close relationships. In cultures in which females are trained to take a submissive role compared to men, they could have great difficulty refusing an early marriage (WHO, 1998). They could also have great difficulty insisting upon protected sex when they have a boyfriend or partner who has not been faithful (*ibid.,* 1998). Young men, on the other hand, are essentially expected to demonstrate they are virile by harassing and engaging in unprotected intercourse with multiple partners (*ibid.,* 1998).

In many developing societies, girls are more likely than boys to limit their schooling when there is a financial constraint in the household (Mathur *et al.,* 2004). In rural settings, schools are often at greater distances from households, which put girls at risk of exposure to greater contact with boys (*ibid.,* 2004). This leads girls to the threat of harassment and sexual violation from boys. In such conditions, parents are worried about keeping their daughters' sexual purity than spending in their futures

(*ibid.*, 2004). So, they prefer not to support their daughters' continued education. The concern about sexual exposure is also a main limiting factor to employment for young girls among the majority of Nepalese families (*ibid.*, 2004). Daughters are often not allowed to work or go outside the home, since parents assume that they could interact with men and this could lead to sexual harassment (*ibid.*, 2004). Therefore, for girls in Nepal, there is considerable pressure from the family for early marriage.

Young girls may also have experienced physical violence as well as peer pressure to have unwanted sex with their boyfriends (Barter, McCarry, Berridge and Evans, 2009). This results in the early initiation of sexual activity and contributes to multiple sexual partners, substance and alcohol abuse and other risk-taking, which may lead to pregnancy (*ibid.*, 2009). In Wales, serious attention is now being paid to child sexual abuse both in its prevalence and in its impact on the long-term emotional and sexual well-being of the people (National Assembly for Wales, 2000). Therefore, it is vitally important that promoters of public health and school teachers who work with vulnerable young people are cognisant of these matters while they promote sexual health.

2.7.3.1 Summary

Young people have acquired access to a great deal of sexualised content in recent years due to the availability of the internet. The egalitarian nature of young people allows them to share new information and ideas with their peers. The number of young people obtaining advice from peers and involved in premature sexual activities has increased in Nepal. Therefore, high quality information, advice and

support are essential to help young people resist peer pressure to have sex before they feel ready. For many young people in Nepal, sex is linked with coercion, violence and abuse. Customary gender roles often ensnare young people into sexual behaviours that are high in risk. In rural Nepal, many school girls walk a long distance from home which puts them at risk of sexual abuse and harassment. As a result, parents do not want their daughters to continue to higher education. Thus, there is a need to develop an effective strategy to allow parents to support their children in further schooling.

Emerging research questions:

- Do young people access sexualised content from the internet and seek advice from peers for sexual health information?
- What factors help to decrease the rate of sexual violence/abuse and harassment among young people?
- What strategies enable parents to support their children's particularly their daughter's schooling?

2.7.4 Sources of sexual health information and skills in sexuality

A South Asian studies have shown that most teenage girls are aware of at least one method of contraception and their source for such information is their peers (Acharya, Bhattarai, Poobalan, van Teijlingen and Chapman, 2010a). However, very few of them have ever used any contraception (*ibid.*, 2010a). The majority of teenage girls are unaware of the process of conception or the dangers of unplanned pregnancy (Goonewardena and Deeyagaha, 2005). It is clearly noted that much of the sexual health knowledge remains superficial and ridden with myths,

misperceptions and a sense of invulnerability among young people (Jejeebhoy and Sebastian, 2003).

Winn, Roker and Coleman (1998) have clearly highlighted that knowledge is necessary for adolescents' safe sexual behaviour and their ability to make informed choices. It also helps in the formulation and development of appropriate sexual health education programmes and services. In Wales, a 'Sexual Health and Well-being Action Plan' aims to make sure that all young people in a Local Authority receive appropriate sex education within schools and that, they have access to quality services (Welsh Assembly Government, 2010). Nevertheless, not all research has consistently found that education can prevent sexual risk-taking among young people (Grunseit *et al.,* 1997; Mathur *et al.,* 2004). In order to influence risk-taking behaviour, school-based sex education may need to focus on specific issues rather than providing a broad overview of sexual health topics (Wight *et al.,* 2002).

Sexually active young people want all topics to be taught at an earlier age compared to those who are not sexually active (Reeves *et al.,* 2006). The most marked differences arise around the topic of rape and how to say 'no' (*ibid.,* 2006). There is also another issue of emotions in sexual relationships and how to discuss contraception with a partner (*ibid.,* 2006). Young people want more detailed information about services and contraception (*ibid.,* 2006). They often report that teachers do not provide enough information because they are considered very young (*ibid.,* 2006).

In Nepal, school pupils have a moderately high level of knowledge about STIs and HIV/AIDS, but they have also high levels of misconceptions about the signs and symptoms (Dewan, 2001). Nevertheless, a structured teaching programme has improved adolescents' knowledge notably (*ibid.,* 2001). This includes factual information, the availability of sexual health services, the ability to make a decision, sexual negotiation, proper use of contraception, late marriage, and delay childbearing (*ibid.,* 2001).

Mathur *et al.* (2001) have argued that accessibility to reproductive health services is poor in Nepal, particularly for young girls. This is because health promoters and service providers, who are the source of information, are reluctant and uncomfortable in communicating and interacting with adolescent girls (*ibid.,* 2001). They feel embarrassed to discuss topics of sexuality, have discomfort with terminology, lack appropriate knowledge of reproductive physiology and lack training in counselling young people (*ibid.,* 2001). Some service providers believe that it is not essential to inform married adolescents on issues of physiology, sex and pregnancy, as they are believed to know about these topics already (*ibid.,* 2001). On the contrary, the reality is that they are poorly informed about physiology, anatomy and in particular, issues of sexuality (*ibid.,* 2001).

A Department of Health (DoH, 2010) report stated that young people should receive information on sex and relationships from well-informed parents and teachers, health professionals and their peers, backed up by media campaigns, if at all possible. However, the reality is different. Young people very often share the myths their peers have told them, thus perpetuating these myths to other impressionable young

people (*ibid.*, 2010). Some previous studies have indicated that for many young people, parents are not the main source of information about sex; rather, peer groups emerge as the main source of information (Schofield, 1965; Allen, 1987; Velleman, Templeton and Copello, 2005). They also gain information from negative activities of sex and relationships in TV, films and pornographic videos (Velleman *et al.*, 2005). All of these sources could increase the pressure on young people to have sex before they are ready (*ibid.*, 2005).

According to Bott and Jejeebhoy (2003), information about sexuality and reproduction is poorly delivered to the majority of South Asian adolescents. A majority of them also do not have the skills to negotiate for safer sex (*ibid.*, 2003). Many parents, policy-makers and social leaders think that holding back information about sex and sexuality from young people dissuades them from becoming sexually active (WHO, 1998). However, there is evidence that good quality sex education helps delay first sex among young people (Ingham, 2005; Kohler, Manhart and Lafferty, 2008). Open communication between parents and children is crucial for delaying children's first sexual experience (Kohler *et al.*, 2008). Clear and consistent media messages could also have an impact on young people's sexual health knowledge and behaviour (*ibid.*, 2008). A study conducted in the UK showed that media adverts about teenage pregnancy resulted in more young people accessing advice and support, discussing contraception with their partner, using contraception, resisting pressure from friends and saying 'no' to sex if they did not feel ready (DoH, 2010).

2.7.4.1 Summary

Friends and peers are the source of sexual health information for many South Asian teenagers. However, the majority of them are still unaware about conception and the dangers of unplanned pregnancy. In particular, access to reproductive health services for young girls is poor in Nepal, since health service providers are reluctant to interact with them. Many young people acquire a basic knowledge of HIV/AIDS and STIs, but they also have significant misconceptions about them. This increases their chance of having sex before they are ready. In such cases, having a structured teaching programme in school could improve adolescents' knowledge and skills in sexuality.

Many policy-makers, opinion leaders and parents still do not support sex education programmes in schools. However, these are essential to develop young people's sexual health knowledge and skills to manage their sexual relationships effectively. So, it is necessary that young people receive accurate information on sex and relationships from parents and teachers, health professionals and their peers. Open and honest communication between parents and children may help young people to delay the first sexual experience. In this modern society, the role of the media in shaping young people's positive sexual attitudes and behaviour cannot be ignored.

Emerging research questions:

- Do young people have poor knowledge and myths about sexual health and lack of skills in sexuality?
- What would make the available sources of sexual and reproductive health information more useful and reliable for young people?

2.7.5 Parental and community support

Research has shown that parents are the earliest and most important teachers in children's lives (Vincent and Martin, 2000). Their support starts from the moment children start learning and developing. Parents could help their children's development by encouraging them to explore, express and exercise their bodies and imaginations (*ibid.,* 2000). Parents are the main source of support to inspire adolescent's education (Vincent, 2001). They can support adolescent's learning in many ways, such as monitoring whether children do homework at home or at school during the school day (Walker, Shenker and Hoover-Dempsey, 2010).

According to Vincent (2001), since the 1980s education policy has emphasised the role of parents as a supporter to the children's academic progress. Walker *et al.* (2010) highlighted an alternative role for parent such as a participant in educational decision-making. Parental involvement in decision-making could also be a means through which parental association might be regenerated into an active and participatory role (Vincent and Martin, 2000). The inter-relationship between social class and parents is very important for young people's sexual health development (Giddens, 1991). Such a relationship makes people most capable of and most effective at learning about sexual health knowledge and behaviour (*ibid.*, 1991).

In Nepal, parents have a belief that sex education could encourage their children to get involved in unsafe sexual activities (Puri and Busza, 2004). Therefore, parents attempt to control and divert their children's sexual health knowledge and behaviour. However, young people have reported having numerous opportunities for planned and unplanned sexual encounters (*ibid.,* 2004). An earlier UNICEF Nepal (2004)

South Asia report has described that one in five Nepalese is sexually active before the age of fifteen. It is observed that the children grown up with two parents and have close relationships with them tend to have a decreased probability of early start of sexual activities (Choe *et al.,* 2004). However, it is essential that the parents and pupils engage themselves in some kinds of creativity that could help to promote respect and responsibility to each other (Scottish Executive, 2006). For many parents, sex education programmes in schools have helped them to get out of an unnecessary job to educate their children on sex education (Frankham, MacLure and Stronach, 1992). Wight and Scott (1994) have clearly noted that it is necessary to have a dialogue between schools and parents to discuss the issues around sex education. Thus, it is important that the coordination and communication between the parents and schools are made to discuss the sexual health issues at an early stage.

A study conducted on parental support and student's learning have identified that the majority of Nepalese parents support their children by checking their homework and managing their supplementary learning materials (CERSOD Nepal, 2005). They also manage their textbooks, instructional materials and monitor their attendance at school (*ibid.,* 2005). However, there are still many areas requiring further parental support in order to improve students' learning behaviour both at home and in school. Parental support for students' learning should be sought mainly in areas like volunteering, parenting, communicating, learning at home, decision-making and collaborating with the community (*ibid.,* 2005). A more effective form of school-to-home and home-to-school communications may help to monitor children's progress (Walker *et al.,* 2010).

Providing information and ideas to families about how to help students at home with homework, including parents in school decisions and integrating resources and services from the community all have a high impact on strengthening school programmes, family practices, and student learning and development (Vincent, 2001). A two-way communication system between parents and schools, mutual support and joint decision-making should be initiated for sustained community based school education programmes (*ibid.,* 2001). Thus, there is a need to develop a clear policy to garner parental support for children's education, with a focus on long-term school improvement. Providing training to teachers to work with parents and orientating parents to support schools and the children could benefit both school and parents in the long term (*ibid.*, 2001)**.**

The greater involvement of parents with schools could enhance the effectiveness of health education programmes (Perry, Luepker, Murray, Kurth, Mullis, Crockett and Jacobs, 1998; Lindsay, Strand and Davis, 2011). Discussing sensitive issues with parents is not as easy as suggested, unless a planned sex education programme is implemented in Nepalese schools. In the planning and designing of sex education programmes parental participation is very important, since it can reflect young people's values, beliefs and attitudes (O'Donnell, Myint-U, Duran and Stueve, 2010). Therefore, it is essential that the school teachers consider those values, beliefs and attitudes while planning and delivering sex education information.

Parental views on sex education are influenced by many factors such as beliefs and values, cultures, family structure, sexual orientation and parenting styles. McCabe's (2000) report highlighted that working with a parent reflects these factors and

confirms that the information on sex education programme is satisfactory. The report further highlights that the meeting between school management committee and parent-teacher associations could provide additional opportunities to get more parental views on sex education (*ibid.,* 2000). It is also important that schools make a direct effort to talk with parents to obtain their responses on sex education (*ibid.,* 2000). It is essential that pupils are provided with accurate information to address their sexual health requirements (Thapa *et al.,* 2001). Thus, a parent curriculum should be developed that could provide basic information on sexual health and promote better parent-child communication in Nepal (*ibid.,* 2001).

A previous study by Allen (1987) discussed how some parents have objected to school sex education, while the overwhelming majority appeared to be in favour of it. For example, most South Asian parents think that sex education could provide more opportunities for their children, especially the daughters, to get involved in unacceptable sexual relationships (Reeves *et al.,* 2006). Moreover, teenagers receive less psychological and social support on sexual health information from their family members and other health service providers. As a result, they are turned towards their peers to obtain such information (*ibid.,* 2006).

Social and institutional restrictions also have a huge effect in shaping adolescents' actions (Mathur *et al.,* 2004). As societies change, personal ideals and aspirations challenge existing norms and values, and young people are often the agents of such change. In particular, gender bias is entrenched in a culture of severe constraints and there are more limited options and opportunity for girls than boys (*ibid.,* 2004). Thus,

despite individual desires, social and community norms make reproductive reality for young girls less positive (*ibid.,* 2004).

The World Health Organisation (1998) has stated that self-esteem and good social skills are essential for young people to make good decisions about their personal development. Nevertheless, there are many factors that have a tremendous impact on how young people think and behave. The values and behaviours of their peers are increasingly important, but parental and community roles are also influential (*ibid.,* 1998). Adolescents' connection to their families and parental involvement has a greater influence on adolescents' feelings about themselves and the way they make decisions about their behaviours (Lamb, 2012). It is necessary to have at least one parent who can provide the required support and information to their children for their well-being (Littrell, Murphy, Kumwenda and Macintyre, 2012). In addition, factors within the wider environment such as mass media and entertainment, community organisations and political and legal system are also equally important (*ibid.,* 2012).

2.7.5.1 Summary

Parents can provide opportunities to explore, communicate and exercise their children's bodies and imaginations. Parents' occupational status and spatial mobility also have a great influence on children's education. Many Nepalese parents still think that sex education could encourage their children to get involved in sexual intercourse. Children brought up and taken care of by parents do not initiate early sexual intercourse. Schools have recognised that the parental guidance is essential for school-based sex education programme. The majority of Nepalese parents support

their children by checking their homework and managing their supplementary educational materials.

However, there are still many things that parents could do to improve their children's sexual health attitudes and behaviour. Parents' participation in the planning and designing of sexual health programmes is very important to influence young people's attitudes and beliefs. Schools should communicate with parents to gain their responses on sex education.

Emerging research questions:

- Is the parental role an important factor in promoting young people's sexual health knowledge and behaviour?
- Does the collaborative work between home, school and community improve young people's sexual health knowledge and understanding?

2.7.6 Partnership with external agencies and sexual health services

In a review study of sex and relationship education in Scottish secondary schools, van Teijlingen *et al.* (2008) highlighted that the development of sex education should comprise of different partners who have various roles in the community. The study further emphasised that young people need accurate information, sexual health advice and access to sexual health services. Thus, professional health workers could be mobilised in schools to provide advice, information and treatment to young people in a confidential setting (*ibid.*, 2008).

It is evident that the health professionals who worked with school children and made good relationships with them are well favoured by the young people (*ibid.,* 2008). Young people have reported that they prefer to get sexual health information from their friends than from health professionals (Reeves *et al.,* 2006). This is because the young people are concerned about being judged and stigmatised by the health professionals during the sex education programme. Thus, it is important to provide basic training to the health professionals to address pupils' requirements (Jones, 1990). McCabe (2000 has highlighted that schools should develop suitable professional protocols to collaborate with external agencies to recruit health professionals.

Many of the traditional organisations of sexual health and family planning clinics in Nepal provide information and services on contraceptives (Shrestha, 2002). However, many of the young people do not use these services, since they suspect that the health professionals could stigmatise them (*ibid.,* 2002). Therefore, it is highly recommended to associate sexual health services with other health services, so that young people could be encouraged to visit the sexual health clinics (van Teijlingen *et al.,* 2008). Young people need accurate and factual information so they can make safe and healthy choices regarding their sexual health (DoH, 2010). In addition, appropriate skills and confidence could help to protect themselves from risky behaviours such as having sex before they are ready (*ibid.,* 2010). For this, young people need an open and honest conversation about sex and relationships to take place with parents, health professionals and peers (*ibid.,* 2010).

In Wales, as in the rest of the UK, it is essential to develop partnerships between different agencies around sexual health (Welsh Assembly Government, 2010). There have been positive changes to sexual health and sexual health services after the launch of the 'Strategic Framework for Promoting Sexual Health in Wales' (*ibid.*, 2010). In the diagnosis of new infections of Gonorrhoea and Chlamydia, there has been a consistent downward trend since 2005 (*ibid.*, 2010). Sexual health services provided by family planning and GUM clinics (Genito-Urinary Medicine) have been integrated to help improve the experience for patients (*ibid.*, 2010). Nevertheless, the rates of teenage conceptions remain relatively static and numbers of new diagnoses of HIV have been rising (*ibid.*, 2010).

The Minister for Health and Social Services has clearly noted that the Welsh Assembly Government aims to develop local HIV and sexual health networks to ensure a multidisciplinary and collaborative approach to patient care (Welsh Assembly Government, 2006). The overarching aim of the integrated service is a single health service that would maximise opportunities for preventive health checks and prompt diagnoses of infections and for the provision of a more effective, efficient and acceptable service for the people (*ibid.*, 2006).

A previous study conducted by Committee on Health Promotion (1995) suggested that delivery of good sex education could contribute to the reduction of teenage pregnancies and improvements in sexual health, particularly when linked with improved access to services. Young people prefer the confidentiality while obtaining varieties of sexual health information and services (*ibid.*, 1995). It is identified that school-based sex education could include family planning information, responsible

sexual activities and access to local sexual health clinics (*ibid.,* 1995). However, there are many reasons for young people not to feel comfortable to access and use sexual health services (Campbell, Foulis, Maimane and Sibiya, 2005).

Many young people in the developing world, such as in South Asian countries do not visit health workers to discuss their sexual health problems (Dahal *et al.,* 2005). According to those young people informality, confidentiality, accessibility, non-judgemental and the ability to select male or female health worker in the health centre are the main factors to make a decision to use sexual health services (*ibid.,* 2005). Therefore, it is important that the health workers are trained to understand the needs of young people and aware of confidentiality while delivering sexual health services (*ibid.,* 2005). In Nepal, schools and health service clinics are open at the same time (Regmi, 2009). As a result, many young people miss the opportunity to visit the clinics to obtain health services. Thus, the opening time of sexual health clinics at weekends and during school holidays could help young people to receive the sexual health services (*ibid.,* 2009).

Teenage mothers have reported a low uptake of antenatal care compared to adult mothers in some South Asian countries (Sharma *et al.,* 2001). Socio-economic deprivation remains significantly important, reflecting differential access to health services among teenage mothers (Goonewardena and Deeyagaha 2005). Health service utilisation by teenagers has been poorly studied in South Asia. An Indian study explored that socio-cultural traditions, gender relations, availability and access to health facilities and low health sector infrastructure are all barriers to accessing health care services (Santhya and Jejeebhoy, 2005). The study further describes that

the service delivery programmes are not youth-friendly as per young people's requirements (*ibid.,* 2005).

In the UK, research that was focused on service provision was started in the 1990s and the NHS guidelines advocated the expansion of age specific services for young people in 1992 (Adler, 1997; Grunseit *et al.,* 1997). Based on these guidelines, it was explored that young people particularly value services that maintain confidentiality as well as privacy and are sensitive to their specific needs (Butler and Solomon, 2002). Young people are particularly concerned about being judged and feeling ashamed when approaching sexual health services (*ibid.,* 2002). It is clear that schools are limited to providing general information and advice, whilst medical centres provide practical guidance for individuals (*ibid.,* 2002). Nevertheless, young people still prefer to receive most of their sexual health information and services in the schools (Graham *et al.,* 2004).

Confidentiality and a friendly atmosphere, where no parents can access or notice, are the most important aspects to young people when receiving sexual health services (Graham *et al.,* 2004; Free, 2005). Sexual health clinics should be easily accessible; preferably centres should be located near to the home or school (Reeves *et al.,* 2006). Young people may find accessibility important, as travelling longer distances without informing their parents may be difficult (Jewell, Tacchi and Donovan, 2000). Many young people prefer weekend clinics as the most appropriate to their needs (Reeves *et al.,* 2006). This highlights a need for flexible sexual health services that could be accessed easily, and which fit the pattern of young people's needs (*ibid.,* 2006).

Some other studies have suggested that most young people prefer a young person's sexual health clinic rather than a general clinic (Jacobson, Mellanby, Donovan, Taylor and Tripp, 2000; Graham *et al.*, 2004). A majority of young people in Nepal have no access to general health services (NDHS/New Era Nepal, 2006). It is apparent that before the age of 20, a majority of Nepalese young people become sexually active (*ibid.*, 2006). However, many of them still lack access to family planning services. For many young people, opening times or the location of services are inaccessible, or they are too expensive (Sixsmith, Griffiths, Hughes, Wren, Penfold and Natusch, 2006).

In Wales, community contraceptive clinics and GPs supply the contraception and young people are free to choose between these service providers (NHS Wales, 2006). Some pharmacies are now offering a free emergency contraception for women and teenage girls to take quick action to avoid an unwanted pregnancy (*ibid.*, 2006). This service is also available to girls aged under 16 years and offers practical support to help avoid teen pregnancies (*ibid.*, 2006). However, GPs provide more advice and information on contraceptive use than the community contraceptive clinics (*ibid.*, 2006). The Welsh Assembly Government is committed to strengthening community care provision through partnership working between sexual health services, primary care, social care and the third sector (Welsh Assembly Government, 2010). These services require both physical premises and human resources, with geographical outreach and extended user-friendly opening hours, since these are the particular issues for young people of school age who find it difficult to take time out during school hours (*ibid.*, 2010).

Contraceptives are highly effective at preventing pregnancy when used properly (Onyensoh, 2011). The costs of providing contraceptive and counselling services to young people are far less than the health and social costs of unplanned pregnancy (Hughes and McGuire, 1996). The majority of young people in the UK are found to use contraception; however, a minority of them does not always use it effectively on a consistent basis (DoH, 2010). This clearly suggests that young people need information about fertility and different types of contraceptives. Sexual and reproductive health services need to be friendly and accessible to them.

For the last few years, there has been significant investment in contraception services to reduce teenage pregnancy and to improve the sexual health services in Nepal (Dangal, 2005). These services are increasingly being delivered from a range of non-clinical locations such as Non-Governmental Organisations (NGOs), Community-Based Organisations (CBOs) and youth information centres. In the majority of cases, proper use of contraception effectively prevents pregnancy, HIV/AIDS and STIs (*ibid.,* 2005). Young people should feel comfortable asking for contraception, since this is their right and responsibility (UNICEF, 2009). They should ensure that when they do become sexually active they understand the range of contraceptive methods available to them. They should also know how each method works to prevent pregnancies, protect their sexual health and know where to access local services if they need advice (*ibid.,* 2009). However, a majority of young people still do not think about visiting a sexual health service centre, even if they are having unprotected sex (*ibid.,* 2009).

2.7.6.1 Summary

School-based sex education should involve various partners who have different and complementary roles. Adequately trained health professionals should maintain confidentiality and provide accurate information and treatment to young people. Schools need a shared professional protocol to work with external agencies that could support pupils' sexual health well-being. Young people need open communication about sex and relationships with parents, health professionals and peers.

So, it is important that school sex education should include information about family planning and responsible methods, as well as access to local sexual and reproductive health services. These service centres should preferably be located near their home or school and should be open during weekends and school holidays. Such services should be affordable and should be associated with other services to avoid embarrassment.

Emerging research questions:

- Is the partnership between schools and external agencies an important aspect in delivering sexual health services and information to Nepalese young people?
- What sexual health services can be available from the external agencies?

2.7.7 School-based sex education programme

In Nepalese schools, teachers are the main providers of sexual and reproductive health education. However, very few of those teachers are trained to deliver and

monitor sex education programmes in Nepal (Mathur *et al.,* 2004). Most Nepalese teachers are reluctant to discuss sex education in the classroom (Pokharel *et al.,* 2006). Proper training in sexual health education is very important, since it develops teachers' skill and confidence to deliver sex education more effectively (*ibid.,* 2006). Studies have also identified that providing professional training to teacher develops their knowledge, skills and confidence in delivering sex education in schools (Wight and Scott, 1994; McCabe, 2000; Buston, Wight, Hart and Scott, 2002).

In Nepal, there are contradictory issues about sex education among school teachers, parents and young people. Teachers are keen to provide biological information, but parents want teachers to provide moral education (Stone *et al.,* 2003). On the contrary, pupils prefer to obtain knowledge into life skill-based sex education (*ibid.,* 2003). Therefore, it is important to take into account these interests to design and develop training for teachers that could be more comprehensive (*ibid.,* 2003). It is evident that some teachers think their students are very young to obtain sex education (Reeves *et al.,* 2006). However, a systematic search of the worldwide literature published between 1986 and 2006 has highlighted the necessity to deliver sex and relationship education at an earlier age (van Teijlingen *et al.,* 2008).

A previous study conducted by Kirby and Coyle (1998) has shown that the inequalities that are associated with gender affect young people's sexual behaviour and attitudes in fundamental ways. Measor (2004) has also explored how girls and boys respond differently to school sex education programmes and boys respond more negatively than the girls do. This suggests that a better strategy is required to address the interest of boys and girls effectively. There are not enough audio-visual resources

to deliver sex education programmes in Nepalese schools (Pokharel *et al.*, 2006). Teachers are depended on school textbook and it hinders the effective teaching of sex education. They want to do better in the sex education class; however, reliability over the school textbook has created a discomfort for them (*ibid.*, 2006).

Young people should not be provided with relevant sexual health information with the assumption that they would just pick less risky options (van Teijlingen *et al.*, 2008). It is important that young people' social life has to be changed to allow well-functioning and safe relationships of sexual behaviour which is a normal and desirable (Evans and Tripp, 2006). However, young people's knowledge, behaviour and the personal beliefs can differ greatly in respect to the social reality. Therefore, it is important to understand how and in what setting young peoples are provided with sex education (*ibid.*, 2006).

In a Scottish Executive (2006) report it is clearly defined that sex education is an important factor to develop young people's beliefs, attitudes and values about their sexuality within an ethical context. Schools are advised to provide an open and positive environment that could allow young people to discuss and obtain required information about sexual health (Reid, 1999). Such information are vital for those schools which aim to provide accurate information about the physical and emotional changes that takes place during young people's developmental years (*ibid.*, 1999).

According to Bearinger, Sieving, Ferguson and Sharma (2007), health educators and public health officials should continue to look for the effective methods to decrease the incidence of early sexual behaviour and the rates of high-risk sexual activity

among young people. A common and agreed approach is the classroom-based curriculum (*ibid.,* 2007). However, over the past decade the content of these curricula has increasingly focused on abstinence (Borawski, Trapl, Lovegreen, Colabianchi and Block, 2005; Santelli, Ott, Lyon, Rogers, Summers and Schleifer, 2006). This leads to concerns by health educators that the absence of contraceptive information programmes places young people at a higher risk once they engage in sexual intercourse. In fact, there are very few published evaluations of abstinence-only programmes (Kirby, 2001; Santelli *et al.,* 2006; Kohler *et al.,* 2008) compared to the other comprehensive sex education curricula (Kim, Stanton, Li, Dickersin and Galbraith, 1997; Kirby, Laris and Rolleri, 2007).

A previous intervention trial conducted with a large sample size showed that there is an increase in condom use and a reduction in unprotected sex among young people in school (Coyle, Basen-Engquist, Kirby, Parcel, Banspach, Collins, Baumler, Carvajal and Harrist, 2001). Allen (2005) has mentioned that it is important to provide emotional as well as physical aspects of sexuality, while providing quality sex education to young people. The effective intervention should be designed and implemented with a thorough exploration of the cultural and psychological aspects of sexual health and relationships (*ibid.,* 2005).

In Nepal, many parents think that sex education could create a problem to find a good husband for their daughter (Waszak *et al.,* 2003). Delaying child bearing and creating better lives should be the important steps of sex education for girls (*ibid.,* 2003). However, being single is more likely to increase the chances of getting pregnant and infected with STIs, especially if there is a lack of sexual health

information (*ibid.*, 2003). Magnani, MacIntyre, Karim, Brown, Hutchinson, Kaufman and Dallimore (2005) have emphasised that young people should be provided with life-skills to equip them with interpersonal skills such as decision-making, self-confidence and effective communication.

Stone *et al.* (2003) conducted a study looking at the knowledge of sexual health issues among unmarried young people in Nepal. The study explored that the Nepalese teachers deliver sex education in a didactic approach, which is very common in Nepal. However, the study suggested delivering sex education in an interactive approach to involve young people in a participatory learning. This approach could help them to interact, provide opportunities to generate and share ideas, challenge one another constructively and explore a range of issues relevant to their lives (Pokharel *et al.*, 2006). This kind of interactive learning could help improve young people's self-confidence and increase their participation in sexual decision-making (Aggleton and Campbell, 2000). In Western countries such as in the European Union, children's rights are a part of universal human rights (European Union, 2008). Therefore, teachers are required to use interactive approach that could encourage young people to get involved in learning (Stone *et al.*, 2003).

Aggleton and Campbell (2000) have highlighted that trained teachers are the essential resources for quality sex education programmes in schools. Such quality programmes could help to address the importance of Sexual and Reproductive Health (SRH), which is described throughout all eight UN Millennium Development Goals (MDGs, 2008). According to Acharya *et al.* (2009), many Nepalese teachers do not want to deliver sex education and to discuss sexual health issues with the

young people. It is evident that teachers' lack of confidence and lack of up-to-date knowledge to sex education could cause the delivery of sex education ineffective (Mturi and Hennink, 2005; Grossman, 2008). Therefore, it is important to improve teachers' self-efficacy concerning lesson delivery, so that they could feel more empowered in the sex education classroom.

Wight and Abraham (2000) have found that the teacher training improved teachers' knowledge and confidence significantly. Teachers with low confidence reported higher improvements. A majority of the teachers (86%) also reported that they were happy to receive such trainings (*ibid.,* 2000). A previous study conducted in selected Asia-Pacific countries found that schools are appropriate places to deliver sex education, although a majority of students generally think sex education is limited and taught too late (Smith, Kippax, Aggleton and Tyrer, 2003).

In Ceredigion in Wales, the challenge is to train all staff to promote emotional well-being to promote sexual health (NHS Wales, 2011). In 2001, the Welsh Assembly Government launched a strategic framework for promoting sexual health (Welsh Assembly Government, 2010*).* Under this framework, the government undertook a formal review of HIV and Sexual Health Services (*ibid.,* 2010). In 2004, the government introduced a modernisation programme that resulted in the inclusion of Sex and Relationships Education (SRE) within the updated Personal and Social Education framework in schools in Wales (*ibid.,* 2010). These schools seek to actively promote and protect the physical, mental and social health and well-being of its pupils, staff and the wider community. It is advised that sex and relationship

education should be an integral part of the learning process of all children and young people, including those with physical, learning or emotional difficulties (*ibid.,* 2010).

It is evident that school-based sex education does not increase sexual activity or pregnancy rates (Wight, Plummer, Mshana, Wamoyi, Shigongo and Ross, 2006). Well-designed sex education programmes could encourage the postponement of sexual intercourse among young people who are not yet sexually active and are associated with the effective use of contraceptives (*ibid.*, 2006). Young people who are already sexually active are less likely to change their sexual and contraceptive behaviour (Shepherd, Kavanagh, Picot, Cooper, Harden and Barnett, 2010; Wamoyi, Fenwick, Urassa, Zaba and Stones, 2011). Consequently, according to Shepherd *et al.* (2010), sex education should start before young people become sexually active. It should be linked with skills development such as discussing condom use and learning to say 'no' (*ibid.,* 2010). Participatory teaching methods such as role-plays are particularly effective, since they allow the practice of communication and negotiation skills to the young people (Wight *et al.*, 2006).

Sex education programmes should include different activities to address relevant social, peer and media influences (Hodžić, Budesa, Štulhofer and Irvine, 2012). It needs to reflect the positive aspects of sexual relationships aiming at preventing pregnancy, increasing contraceptive use and controlling STIs and HIV/AIDS (Jaworsky, Larkin, Sriranganathan, Clout, Janssen, Campbell and Flynn, 2013). These topics should be discussed in combination, rather than addressing them as separate issues (*ibid.,* 2013). The most effective school-based sex education programmes increase contraceptive use and reduce unwanted teenage pregnancy

while combining access to contraceptive services (Sriranganathan, Jaworsky, Larkin, Flicker, Campbell, Flynn and Erlich, 2012). It is recommended that health service staff should be involved in the delivery of sex education programmes to introduce young people with the clinical staff (*ibid.*, 2012). Giving an opportunity to meet with the clinical staff and providing clinical services on school premises could help young people to access required information, advice and services (*ibid.*, 2012).

Effective sex education programmes require an effective delivery method. Thus, it should be provided by trained and confident staff and should be delivered within environments which are supportive and safe for staff, visitors and pupils (Rogstad, Thomas, Williams, Forster, Munday, Robinson and Lazaro, 2010; Carroll, Lloyd-Jones, Cooke and Owen, 2012). Around two-thirds of US based sex and relationship education programmes have also shown that curriculum based sex education programmes have a positive effect on teenage sexual behaviour, such as a delay in the initiation of sex and increased condom use (Kirby, 2001).

2.7.7.1 Summary

Many teachers are not trained to deliver sex and reproductive health education in schools. Consequently, it is important that teachers are trained to deliver sex and reproductive health education. The training should be more inclusive, relevant to students' requirements and be able to boost their confidence level to discuss sexual matters. It may also be useful to teach girls and boys separately. The aim is to reach the boys effectively and maintain girls' interest in the classroom. The use of audio-visual aids is very important for effective sex education programmes in schools.

Health educators and public health officials should seek effective methods to reduce the incidence of early sexual initiation and the rates of high-risk sexual activity among young people. The cultural and psychological impacts of sex education should also be explored while implementing such methods. Girls in Nepal, particularly, should be empowered and encouraged to attend sex education programmes while in school. Focusing more on interactive learning and engaging young people in structural activities encourages young people to share their ideas. So, teachers should use a more informal and participatory approach to deliver sex education.

Emerging research questions:

- Which teaching approach would help young people to actively take part in classroom interaction?
- What training component improves school teachers' confidence to deliver sex education curricula in schools?
- What are the motivating factors to encourage young people, particularly young girls, to come forward and take an active role in the sex education learning process?

2.7.8 Peer-led versus health facilitator-led sex education in school

Peer-led sex education

A peer is a person who is of equal standing with another and belongs to the same societal group such as age, grade or status (Calvó-Armengol, Patacchini and Zenou, 2009). This means the interaction within the group is based on equality (*ibid.*, 2009). Peer education is used to bring changes in sexual health knowledge, attitudes, beliefs

and behaviours at the individual level. Peer education may also create changes at the group, society or community level by amending norms and stimulating collective actions that contribute to changes in policies and programmes (*ibid.*, 2009). Peer education is not intended as isolated intervention; it is intended to be one of the important components of a comprehensive programme to help young people make their own wise and responsible decisions (Save the Children, 2004). The most common application of peer education during the last twenty years has been in relation to reproductive health, STIs, HIV/AIDS and prevention of drug use (*ibid.*, 2004).

A report from International Planned Parenthood Federation (IPPF, 2004) suggested that one organisation is not able to provide everything that is needed for a comprehensive response to sexual and reproductive health improvement. Therefore, it is necessary to make an assessment of what is to be involved in each programme, what other organisations are doing and what skills and resources are available (*ibid.*, 2004). Peer education is widespread and could be useful and powerful however, it should be carefully considered whether it is appropriate to the programme and the target group (UNICEF Nepal, 2005).

A systematic review of 26 randomised controlled trials illustrated that peer education has reduced unintended pregnancies among adolescents (DiCenso, Guyatt, Willan and Griffith, 2002). Some of these studies were conducted in schools and included peer-led sex education, although none of the studies were aimed at improving the quality of sexual relationships. The review also concluded that none of the studies showed delaying the start of sexual intercourse, or improving the use of

contraception (*ibid.*, 2002). However, some recent studies have shown that peer-education programmes were able to increase young people's knowledge, modify their attitudes and improve their protection self-efficacy (Li, Huang, Cai, Ye, Shen, Shi and Xu, 2010; Baghianimoghadam, Forghani, Zolghadr, Rahaei and Khani, 2012).

Peer-led sex education is increasingly popular and has been identified as a method of delivering health information in schools and as a promising strategy for reducing teenage pregnancy (DoEE, 2000). A previous study by Shiner (1999) suggested that peer education is effective in increasing young people's sexual health knowledge, despite a lack of rigorous evaluations (Mellanby, Phelps, Crichton and Tripp, 1995) and an inadequate theoretical basis (Turner and Shepherd, 1999). Evidence also shows that there is a positive effect of peer education to increase knowledge level of peer educators themselves (Phelps, Mellanby, Crichton and Tripp, 1994; Langiano, Ferrara, Calenda, Martufi and De Vito, 2012).

A Peer Education Trial in England (RIPPLE study) revealed that the peer-led sex education programme is more enjoyable and more interactive compared to the traditional teacher-led sex education (Forrest, Strange and Oakley, 2002). The egalitarian nature of young people allows them more opportunities for open communication and discussion of sexual health issues. However, it is not clear how peer education translates into effective practice in the classroom (Wight and Abraham, 2000). So, it is important to take care whilst designing and implementing peer education programmes in schools.

Health facilitator-led sex education

On the other side, some studies have argued that external experts (i.e. outsiders) such as health facilitators are more effective to deliver sex education (McCabe, 2000; McFadyen, 2004; Pokharel *et al.*, 2006). Young people have also liked the health facilitators if they are updated and trained to upgrade their sexual health knowledge (McCabe, 2000). These outsiders are given importance for their ability to manage the sex education in the classroom. They could easily deal with the sensitive topics around sex education, since they are not bound to have on-going contact with the pupils (*ibid.*, 2000). Some other research has also raised the issue to have separate classes for girls and boys (Pokharel *et al.*, 2006). However, the current Nepalese educational policy has no place for the involvement of either external organisations, or having two classes for boys and girls.

The school nurse or other health professionals could play a valuable role in promoting and teaching sex and relationship education, as their clinical training and pastoral activity may provide them added credibility with pupils while discussing sex and contraception (McFadyen, 2004). With the consent of secondary schools, nurses could provide confidential advice to pupils on a range of sexual health issues (*ibid.*, 2004). Healthy living is a fundamental aspect of the sex education and it should be extended beyond the school classroom (McCabe, 2000). It should be well known that schools and authorities have an important role to help and encourage parents and young people (*ibid.*, 2000). Therefore, a suitable policy to involve health facilitators for sex education delivery in schools could provide more opportunity for young people.

2.7.8.1 Summary

Peer educators bring changes in sexual health knowledge, attitudes, beliefs and behaviours at the individual level, as well as changes at the group, society or community level. However, the peer education programme should be designed and implemented carefully, ensuring that the programme is appropriate to the study's aim and tailored to the needs of the target group. The theory behind peer education is that the egalitarian nature of young people allows them to ask, share and participate in sexual health discussions with their peers. It is very important that teachers, health workers and parents should understand this.

On the other hand, external experts (i.e. outsiders) such as health facilitators are more effective in delivering sexual health education in schools. Many young people like health facilitators to deliver sex education in their schools. This is because young people feel comfortable discussing sex and sexual health issues with them. Health facilitators are given priority for their capability to deal with uncomfortable topics around sex education. They could take the pressure off teachers when dealing with highly sensitive topics, as they do not have to continue on-going relationships with pupils. They are clinically trained, which may provide them added credibility with pupils while discussing sex related complications and contraception.

Emerging research questions:

- Does a health facilitator-led sex education programme improve young people's sexual health knowledge and understanding compared to the conventional teacher-led sex education programme?

- What are the best practices of peer-led and health facilitator-led sex education in improving young people's sexual health knowledge?

2.7.9 Policy and practices in school sex education

The Ottawa Charter for Health Promotion recognised the development of healthy public policy as one of five key action areas (WHO/EURO, 1986). There are a number of interpretations of the term 'policy' existing within health promotion (Delaney, 1994). However, it is frequently associated with the structural determinants of health (*ibid.,* 1994). It is argued that education can contribute directly to the development of healthy public policy, principally through raising public and professional awareness of the issues in question and by generating a groundswell of support (Tones and Tilford, 1994). Nevertheless, policy could create environments that are supportive of healthy lifestyles.

It is clear that the relationship between education and policy is both complex and synergistic and that policy could influence the extent and nature of the health education provided (WHO/EURO, 1986). Education policy shapes school health education either positively or negatively. Healthy public policy is characterised by an explicit concern for health and equity in all areas of policy and accountability for health impacts (*ibid.,* 1986). It is essential to analyse the way in which policy, at both national and local levels, impinges on the provision of sex education in Nepalese schools. This would help to explore how national policy has developed to satisfy the demands of schools and young people.

Sex education in school raises many questions including the rights of parents and potential conflicts in values between school and home. The evidence indicates that school sex education does not lead to earlier sexual activity (Markham, Tortolero, Peskin, Shegog, Thiel, Baumler and Robin, 2012). Sex education programmes are effective in lowering the rates of unwanted pregnancy and abortion and maintaining open attitudes towards sexuality and sex education (Jones *et al.,* 1985; Molina, Roca, Zamorano and Araya, 2010; McKay, 2012). A previous survey of sexual attitudes and lifestyles conducted in Britain, has also demonstrated that those for whom school is the main source of information about sex, are more likely to use some form of contraception during first sexual intercourse and there is no evidence that school sex education results in earlier sexual experience (Wellings, Wadsworth, Johnson, Field, Whitaker and Field, 1995).

A number of studies have suggested that school sex education programmes delivered by peers are found to be relatively effective in decreasing sexual activity in comparison with a control population (programme not delivered by peers) (Mellanby, Pearson and Tripp, 1997; Forrest *et al.,* 2002; Langiano, *et al.,* 2012). Overall, the practice of school-based sex education indicates that it could contribute positively to the development of informed and responsible attitudes to sexuality. It could also provide well-planned sex education programmes designed to meet the developmental needs of pupils.

In Nepal, policy initiatives regarding the examinations of sex education are comparatively new. There are mainly two policy documents for sex education; the National Reproductive Health Strategy (1998) and the National Adolescent Health

and Development Strategy (2000) (MoH Nepal, 2000). It is evident that there are wide variations between the types of schools and the delivery of sex education in Nepal (Mahat and Scoloveno, 2006). However, it is recommended that school-based sex education programme should be given more priority to tackle the sexual health issues of young people (*ibid.*, 2006).

In Nepal, students are taught basic sex education in higher secondary classes (pupils aged 14 and 15) using a chapter on reproductive health contained within the textbook Health, Population and Environment (MoE/DoE Nepal, 2008). The chapter covers basic reproductive health facts concerning safe motherhood, family planning, reproductive physiology, STIs/HIV/AIDS, infertility, adolescent health, the reproductive health problems of post-menopausal women and reproductive rights. The Ministry of Education endorsed these topics in 1998-99 (*ibid.*, 2008). However, there is very little known about the extent to which these contents are covered in classrooms to address the issues of modern pupils' sexual health concern (Acharya *et al.*, 2009).

In Nepal, it is not common to provide information about responsible sexual behaviour and specific, factual information about the outcomes of unsafe sexual activities either in home or at school (Dangal, 2005). Therefore, it is essential to conduct a study to identify the contributing factors and to implement effective sexual health policies and programmes for young people. Many school interventions aim to improve young people's sexual health; however, they are narrowly focused and work in isolation, which greatly reduces their effectiveness (Acharya *et al.*, 2009). Mutual and supportive interventions could be more cost effective compared to an individual

programme (*ibid.*, 2009). For example, modern young people require information about sexual and reproductive health. This information could be more useful if it were accompanied by other types of skill, such as life skills education (Dangal, 2005). This could help young people to build their self-esteem, a sense of responsibility and social confidence (*ibid.*, 2005). These skills are equally important and useful in assessing risky conditions and negotiating difficult sexual relationships.

It is clearly seen that many young people need access to confidential reproductive health services and to treatment for STIs (WHO, 1998). Some others need proper counselling in crisis situations. Health workers are the vital health people in the community who treat common health problems. However, they could also be trained to provide counselling services (*ibid.*, 1998). Similarly, peers could create a supportive social climate in which young people might share their feelings and experiences.

In Ceredigion, Wales, sex and relationship education is not part of the national curriculum; rather, it is a developing discipline for which no specialist qualification exists (Welsh Assembly Government, 2010). However, the sex education programme needs to be extended to all young people and there is a need for external agencies to collaborate more closely. The local target is to maintain teenage conception rates below the Welsh average (8.0 per annum) per 1000 females aged 13 to 15 (*ibid.*, 2010). Most teachers who teach sex and relationships education or broader personal and social education are generally school teachers of another curriculum subject (*ibid.*, 2010).

Teenage life is a period of rapid growth and development for the body, mind and social relationship (Currie, Zanotti, Morgan, Currie, Looze and Roberts, 2012). Young people's physical growth goes along with sexual maturation (WHO, 1998). In such cases, their thoughts and sense of self-awareness are also heightened. Young people's attitudes, values and behaviours begin to take shape and society expects the young people to take greater personal responsibility. The World Health Organisation (1998) has advocated promoting the health and development of young people by providing them with support and the opportunity to acquire accurate information about their health needs. They argue that this would assist young people in building the life skills needed to avoid risk-taking behaviour and would give them access to counselling (*ibid.*, 1998).

The United Nations Convention on the Rights of the Child is an international agreement, which protects the human rights of children under the age of 18 years (United Nations, 1991). It guarantees to protect individuals and groups from actions that affect their freedom and human dignity. Of those 54 articles in the convention, Article 34 states that the 'Government should protect children from sexual abuse' (United Nations, 1991:1). It suggests how important it is to develop a clear policy framework to implement and monitor sex education programmes in schools.

2.7.9.1 Summary

Health policy is related to the structural determinants of health, which directly influence individuals' lifestyles. Education is regarded as an efficient contributor to the development of healthy public policy, and policy creates supportive environments for healthy lifestyles. Consequently, education and policy are equally

important in terms of their impact on people's health and well-being. In the media-orientated, globalised world, modern young people have great exposure to sexually explicit materials. Any policy regarding the provision of sex education in schools should analyse such exposure and develop an effective guideline suitable for all schools.

The practice of school-based sex education contributes to the development of responsible behaviour and attitudes towards sexuality. However, there are many questions and concerns about school-based sex education and its effectiveness in improving young people's sexual health in Nepal. The Ministry of Education in Nepal should take the lead role in updating and improving school-based sex education content. The policy should also clearly call for the mobilising of peer educators, or outsiders such as health professionals, to deliver sex education in schools. Certain studies suggest that separate classes for girls and boys may improve young people's sexual health; however, policy should clearly state this.

Emerging research questions:

- Does the conventional sex education policy address the issues of modern young people's sexual health concerns?
- What are the opportunities and challenges of current sex education policy to address the issues of modern young people's sexual health concern in Nepal?

2.8 Rationale of the study

The previous sections have described the lack of relevant research on the effectiveness of teaching sex education to young people in Nepal. Nevertheless,

Western societies have a long tradition of conducting research into young people's sexuality, which has attracted many researchers of different backgrounds, including sociologists, educationalists, epidemiologists, public health professionals and demographers, due to the identified relationships between sexual behaviours and certain sexual and reproductive health outcomes. Research on sexual attitude and knowledge has been taking place among young Nepalese people in recent years. However, the effectiveness of teaching sex education in schools has been inadequately explored.

The effectiveness of teaching sex education, including fertility and family planning research in Nepal, has relied on quasi-experimental design (Adhikari and Tamang, 2009). In addition, previous studies have often focused on a single unit of the study such as one school or one community group. Conversely, this PhD study is a Randomised Controlled Trial (RCT) and includes four different community-based secondary schools from the semi-urban area in central Nepal. The Nepalese government has invested a huge amount of money to enhance sexual and reproductive health programmes for young people (Dahal, 2008). Nevertheless, the impact of these programmes on young people's knowledge and behaviour is still in question.

In Nepal, there is a common view that young people are concerned about their attitudes towards the opposite sex, friendship and sexual relationships (Regmi *et al.*, 2008). These opportunities may have resulted in coerced sexual activities, aggression, unwanted pregnancies, induced abortion and STIs/HIV (Prasai 1999, Gubhaju 2002). Upreti *et al.* (2009) have also indicated that Nepalese young people's

engagement in unsafe sexual practices has only been reported in a limited number of studies. As a result, health facilities have failed to provide specialised sexual health information and services to young people. This suggests that there is a need to understand the barriers to adopting safe and responsible sexual and reproductive behaviour and that this information would also be important in designing policies for sex education in schools.

Efforts to increase the understanding of the issues of sexual culture and behaviour among young people are perhaps the first steps to formulating better policy and interventions. Additionally, any intervention programme should be based on rigorous research. Therefore, research into the effectiveness of teaching school-based sex education is crucial for policy-makers and programme designers and ultimately for young people's welfare.

2.9 Aims and objectives of the study

The overall aim of the study is to evaluate the effectiveness of school-based sex education programmes used to promote young people's sexual health knowledge and understanding in Nepal. In addressing this aim this study collectively undertakes the following objectives:

(1) To describe the existing sexual health knowledge and understanding of young people.

(2) To explore the effectiveness between sexual health knowledge and the delivery of sex education.

(3) To investigate the socio-cultural context of sexual health education and sexual relationships.

(4) To recommend appropriate teaching strategies to enhance pupils' knowledge, understanding and behaviour for safer sexual health.

2.10 Research questions

The key themes in the previous section (please see Section 2.7) lead to various emerging research questions related to the sexual health knowledge and behaviour of young people. Cohen, Manion and Morrison (2011) emphasised that translating a general aim or objective to specific, concrete questions helps the researcher reduce the aim or objective to more specific questions to which specific answers could be provided. This is called operationalisation, which means specifying a set of operations that can be measured (*ibid.,* 2011). A summary of the key themes and emerging research questions of this study is shown in Table 2.1.

Considering the aims and objectives and the relevance of this study only a few emerging research questions were considered as a main research question (please see Section 2.10.1) and sub-questions (please see Section 2.10.2). The other emerging research questions were not considered to be important (please see Table 2.1 for the explanation). Nevertheless, upon completion of this study, the remaining emerging questions could be further explored in future research.

Table 2.1: Summary of the key themes and emerging research questions

**=considered as a research question; **=not considered as a research question*

Key themes	**Emerging research questions**	**Appropriateness of questions to study**
Teenage pregnancy and complications	Do the media, custom and culture encourage young people to become involved in early sex?*	In Nepal, early marriage is common among young people and there is a social expectation to have a child soon after marriage (Adhikari, 2003; Mathur *et al.*, 2004). Sex and marriage is determined by custom and culture (Shrestha, 2002). In recent years, many Nepalese young people have developed the habit of watching some forms of sexual content through mass media such as TV, videos and movies that have encouraged young people to get involved in early sex (Regmi *et al.*, 2010).
	What strategies could help, particularly young girls, to reduce the rate of teenage pregnancy and its complications?**	Lack of resources, limited time period, not closely connected to the purpose of Nepalese school education curricula. Need more information from different stakeholders such as Ministry of Health (MoH), Department of Health (DoH), Ministry of Education and National Planning Commission (NPC) to develop the strategy.

Sexually Transmitted Infections (STIs) and HIV/AIDS	Are Sexual and Reproductive Health (SRH) services and information available to young people?* What is the optimal strategy for overcoming the issue of HIV/AIDS and STIs infection amongst Nepalese young people?**	Nepal is experiencing an increase in the incidence of HIV infection (UNAIDS, 2012). Nearly 25% sexually active and unmarried Nepalese young people are involved in risky sexual practices (Dahal *et al.*, 2005). Many Nepalese young people do not want to visit health workers for their sexual health problems (*ibid.*, 2005). Young people's concern about confidentiality, accessibility to health workers, opening time of Nepalese schools and health service clinics are some of the factors that have prevented young people to obtain sexual health services and information (Regmi, 2009). Limited time period, limited resources and not closely connected to the purpose of Nepalese school education curricula. Require more information from National Centre for AIDS and STD Control (NCASC) and Department of Health (DoH) to develop HIV/AIDS and STIs strategy.
Peer pressure and sexual violence/abuse/harassment	Do young people access sexualised content from the internet and seek advice from peers	According to Hennink, Rana and Iqbal (2005), young people in South Asian countries receive sexual health information from

	for sexual health information?*	friends/peers and internet that has encouraged them to get involve in unsafe sexual practices. Many Nepalese young people have also reported that they rely on their peers to receive sexual health information (Adhikari and Tamang, 2009).
	What factors help to decrease the rate of sexual violence/abuse and harassment among young people?**	Limited time period, limited resources, beyond the scope of school sex education curricula. Require more information from Government Organisations (GOs) and different Non-Government Organisations (NGOs) working to prevent sexual violence and abuse.
	What strategies enable parents to support their children's particularly their daughters' schooling?**	Limited time period, limited resources, beyond the scope of school sex education curricula. Require more information from parents, teachers, mothers' groups, District Education Office (DEO) and Ministry of Women and Social Welfare (MoWSW) to review and develop the strategy.
Sources of sexual health information and skills in	Do young people have poor knowledge and myths about sexual health and lack of skills in	Many South Asian teenagers are aware of at least one sexual and reproductive health contraception, however the majority of them

sexuality	sexuality?* What would make the available sources of sexual and reproductive health information more useful and reliable for young people?**	are unaware of the dangers of unplanned pregnancy (Acharya *et al.*, 2010a). Some other studies claimed that the majority of Nepalese young people have a moderate level of knowledge about sexual health but high level of misconception (Dewan, 2001; Mathur *et al.*, 2001). Many Nepalese young people also lack skills on sexuality (Adhikari, Kadel, Dhungel and Mandal, 2007). Limited time period, limited resources, require more information from young people, parents and sexual health information providers.
Parental and community support	Is the parental role an important factor in promoting young people's sexual health knowledge and behaviour?*	Parents are the important teachers in children's life and they can provide opportunities for their children to explore and express themselves (Vincent and Martin, 2000). Parents can also support their children's sexual health learning in several ways, such as watching and monitoring their activities and making decision for their participatory role (Giddens, 1991). Many Nepalese parents believe that pupils are too young to

		discuss sexual health issues and this could lead their children to engage in early sexual activity (Puri and Busza, 2004).
	Does the collaborative work between home, school and community improve young people's sexual health knowledge and understanding?**	Limited time period, limited resources, require more information from parents, school management committee, school teachers, community organisations and local leaders.
Partnership with external agencies and access to sexual health services	Is the partnership between schools and external agencies an important aspect in delivering sexual health services and information to Nepalese young people?*	In Nepal, many traditional organisations of family planning clinics provide sexual and reproductive health services and information (Shrestha, 2002). However, many young people do not visit these clinics, since they think that the health workers of these clinics could stigmatise them (*ibid.*, 2002). McCabe (2000) advised that schools could collaborate with the external organisations such as Non-Governmental Organisations (NGOs), Community-Based Organisations (CBOs) and youth information centres to provide access to sexual health services and information to young people.
	What sexual health services can be available from the external agencies?**	Limited time period, limited resources, require more information from sexual health service providers.

School-based sex education programme	Which teaching approach would help young people to actively take part in classroom interaction?*	Very few Nepalese teachers are trained to deliver and monitor school sex education programmes (Mathur *et al.,* 2004). However, most of the school teachers are unwilling to discuss sex education in the classroom (Pokharel *et al.,* 2006). Proper training in sexual health education is particularly useful in to develop the confidence of those teachers who find the sex education delivery most challenging (*ibid.,* 2006). Stone *et al.* (2003) concluded that teacher should move from the didactic method of teaching to interactive learning, whereby young people are engaged in participatory teaching activities.
	What training component improves school teachers' confidence to deliver sex education curricula in schools?**	Limited time period, limited resources, require more information from sex education policy-makers, school teachers and sex education curriculum developers.
	What are the motivating factors to encourage young people, particularly young girls, to come forward and take an active role in the sex education learning process?**	Limited time period, limited resources, not closely connected to the purpose of Nepalese sex education curricula to encourage girls to take part in sex education.

Peer-led versus health facilitator-led sex education in school	Does a health facilitator-led sex education programme improve young people's sexual health knowledge and understanding compared to the conventional teacher-led sex education programme (main research question)?* What are the best practices of peer-led and health facilitator-led sex education in improving young people's sexual health knowledge?**	According to McFadyen (2004), external experts such as health facilitators could be more effective and informative than peer educators and teachers for teaching sex education in schools. Young people have also liked outsiders if they are trained in a manner to increase their comfort level to discuss sexual health issues (McCabe, 2000). A quasi-experimental study conducted by Pokharel *et al.* (2006) has also emphasised to engage health professionals to provide sex education in Nepalese schools. Limited time period, limited resources, require more information from the literature and beyond the scope of Nepalese sex education curricula.
Policy and practices in school sex education	Does the conventional sex education policy address the issues of modern young people's sexual health concerns?*	The sex education policy can provide well-planned sex education programme to meet the developmental needs of today's young people (Forrest *et al.,* 2002; Langiano *et al.,* 2012). In Nepal, the sex education policy was developed in 1998 and the practice of delivery and examination of school sex education is

		based on this policy (MoH Nepal, 2000). Nepalese school teachers do not provide information about responsible sexual behaviour and specific, clear information about the consequences of unsafe sexual intercourse (Dangal, 2005; Acharya *et al.*, 2009). Therefore, it is important to explore the way in which the current educational policy can address the sexual health issues of modern young people.
	What are the opportunities and challenges of current sex education policy to address the issues of modern young people's sexual health concern in Nepal?**	Limited time period, limited resources, require more information from the school teachers, policy-makers, sexual health experts and sex education curriculum developers.

2.10.1 Main research question

Does a health facilitator-led sex education programme improve young people's sexual health knowledge and understanding compared to the conventional teacher-led sex education programme?

2.10.2 Sub-questions

- Do the media, custom and culture encourage young people to become involved in early sex?
- Are Sexual and Reproductive Health (SRH) services and information available to young people?
- Do young people access sexualised content from the internet and seek advice from peers for sexual health information?
- Do young people have poor knowledge and myths about sexual health and lack of skills in sexuality?
- Is the parental role an important factor in promoting young people's sexual health knowledge and behaviour?
- Is the partnership between schools and external agencies an important aspect in delivering sexual health services and information to Nepalese young people?
- Which teaching approach would help young people to actively take part in classroom interaction?
- Does the conventional sex education policy address the issues of modern young people's sexual health concerns?

2.11 Research hypotheses

A scientific hypothesis is a statement that attempts to predict how a specific feature of study works (Anderson, Burnham, Thompson, 2000). For this study, the main hypothesis and null hypothesis are given below:

Hypothesis (H_1) = There is a significant difference in the post-intervention of control and experimental schools to improve young people's sexual health knowledge and understanding.

Null hypothesis (H_{01}) = There is no significant difference in the post-intervention of control and experimental schools to improve young people's sexual health knowledge and understanding.

CHAPTER-3: RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The overall aim of the study is to evaluate the effectiveness of school-based sex education programmes used to promote young people's sexual health knowledge and understanding in Nepal. The objectives are (1) To describe the existing sexual health knowledge and understanding of young people, (2) To explore the effectiveness between sexual health knowledge and the delivery of sex education, (3) To investigate the socio-cultural context of sexual health education and sexual relationships, and (4) To recommend appropriate teaching strategies to enhance the pupils' knowledge, understanding and behaviour for safer sexual health.

The main research question (please see Section 2.10.1) was designed to identify whether a health facilitator-led sex education programme would improve young people's sexual health knowledge and understanding compared to the conventional teacher-led sex education programme. Other sub-questions are; Do the media, custom and culture encourage young people to become involved in early sex? Are Sexual and Reproductive Health (SRH) services and information available to young people? Do young people access sexualised content from the internet and seek advice from peers for sexual health information? Do young people have poor knowledge and myths about sexual health and lack of skills in sexuality? Is the parental role an important factor in promoting young people's sexual health knowledge and behaviour? Is the partnership between schools and external agencies an important aspect in delivering sexual health services and information to Nepalese young

people? Which teaching approach would help young people to actively take part in classroom interaction? and, Does the conventional sex education policy address the issues of modern young people's sexual health concerns?

This chapter describes the research design, philosophical and pedagogical considerations, research methods, ethical issues, informed consent, questionnaire piloting, conduct of the study, data analysis technique, data triangulation and summary of the chapter.

3.2 Research design

The research design refers to the strategy of how the different components of the research project are to be integrated in a cohesive and logical manner (Bryman, 2008). It provides the framework to convey causal connections between the variables and the generalisation of the findings to larger groups of individuals (*ibid.,* 2008). The success and failure of the study design depends on the planning and steps undertaken in defining the research project. The research plan typically has two broad areas; (a) research concepts and context and (b) research logistics (Reif-Lehrer, 1995). The research concepts and context include developing a detailed research proposal, literature review, identification of the research problem, developing hypotheses, data collection and data analysis and presentation (*ibid.,* 1995). The research logistics describe the establishment of the required information, developing a quality management plan, including data handling and detection of problems with protocols and tools (*ibid.,* 1995). It also includes correspondence with other investigators currently working with similar types of studies and entering data into computer files and detecting problems associated with data recording and planning for the unexpected or unusual failure of the study (*ibid.,* 1995).

3.2.1 Randomised Controlled Trials (RCTs)

This study is an experimental research design, which is also commonly referred to as a Randomised Controlled Trial (RCT). The randomised controlled trial engenders substantial confidence in the robustness of causal findings (Schulz, Altman and Moher, 2010). In recent years, there has been a substantial use of RCT design in the social and educational research (Semaan, Kay, Strouse, Sogolow, Mullen, Neumann and Jarlais, 2002; Hutchison and Styles, 2010).

Harding (2011) conducted an intervention trial to identify the impact of emotional literacy and behaviour change of secondary school pupils in the UK. The intervention was broadly based on a cognitive-behavioural approach, which incorporated social skills, anger management and cognitive behavioural therapy. The study employed a pre-/post-test randomised controlled trial and involved 43 mixed group of pupils (20=experiment and 23=control) of Year 8 (aged 12-13 years) who were identified as having some behavioural needs. The results indicated a statistically significant reduction in the scores of emotional literacy within the control group who did not receive the intervention after the six weeks period, while the experimental group had remained constant.

RIPPLE was a peer-delivered sex education programme conducted to examine the effectiveness of one form of peer-led sex education in a school-based randomised trial of over 8000 pupils in Southern England (Wight, 2011). A total of 29 schools were randomised to either peer-led sex education (intervention) or to continue their usual teacher-led sex education (control). This study applied a number of psychosocial theories of behaviour change such as social cognitive theory, social

inoculation theory and diffusions of innovations theory. The programme was conducted for the period of 1997-2005 and was believed to be more appropriate than teacher-delivered sex education programmes (Milburn, 1995). Peer educators were Year 12 pupils (aged 16-17 years) and they were trained to use participatory methods with Year 9 pupils (aged 13-14 years) in three classroom sessions (1) relationships, (2) STIs and (3) condoms and contraceptives. The primary outcome of the study was unprotected (without condom) first heterosexual intercourse by age 16. The result indicated that by this age, significantly fewer girls reported intercourse in the peer-led school than in the control school, but proportions were similar for boys.

A meta-analysis of sex education studies suggests that school-based sex education is one potential intervention that could increase sexual health knowledge of young people and shape safe sexual behaviours to help prevent sexual health related infections (JHSPH, 2013). A total of 27 randomised trials from the developing countries were considered for the analysis, the mean age of the participants was 16.5 years. The result indicated that pupils who received any type of sex education in the experimental schools were more knowledgeable about HIV than those who did not. Pupils were also reported with greater self-efficacy around sexual decision-making and condom use. There was a 25% reduction in odds of reporting more sexual partners in the experimental group of schools. According to Hogan, Baltussen, Hayashi, Lauer and Saomon (2005), school-based sex education intervention could be cost effective when implemented in the context of combination with other sexual heath related topics.

The Harding (2011), Wight (2011) and JHSPH (2013) studies had one thing in common - they were randomised controlled trial studies designed to look at the effectiveness of delivering information to control and experiment schools. There has been very few research studies conducted around school-based sex education in Nepal (Pokharel *et al.*, 2006; Acharya *et al.*, 2009). These research studies have mainly been based on a quasi-experimental design, which lacked the element of random assignment to the control or experiment group (Pokharel *et al.*, 2006). None of the previous studies has applied RCT design to explore the effectiveness of sex education delivery in school (Acharya *et al.*, 2009). The design of randomised controlled trials has the ability to manipulate independent variables and the ability to replicate the findings to the wider population (Bryman, 2008). Therefore, this study considered RCT design, which is the most reliable form of scientific evidence that could influence educational policy and practice in Nepal.

This study conducted an unmatched intervention trial in secondary schools in Hetauda, Nepal in the period of May-July 2011. The unmatched trials, in which groups of individuals are the units of randomisation, are not matched to evaluate the impact of the intervention (Feng and Thompson, 2002). Randomised controlled trials can be designed to be either pragmatic or explanatory (Schwartz and Lellouch, 2009). Pragmatic trials are designed to determine the effectiveness of an experiment in normal practice (MacPherson, 2004). Explanatory trials are conducted to find out the efficacy of an experiment under ideal, experimental conditions (*ibid.*, 2004). There is evidence that many school-based trials are pragmatic in design (Brinkman, Johnson, Lawrence, Codde, Hart, Straton and Silburn, 2010; Stallard, Sayal, Phillips,

Taylor, Spears, Anderson and Montgomery, 2012) including sex education research (Stephenson, Strange, Allen, Copas, Johnson, Bonell and Oakley, 2008).

This study defined the research question to evaluate the effectiveness of teaching sex education in Nepalese secondary schools under normal conditions. Therefore, pragmatic design was used to answer the question about the overall effectiveness of the intervention. The aim of the pragmatic trial is to help policy-makers and programme designers choose between different interventions.

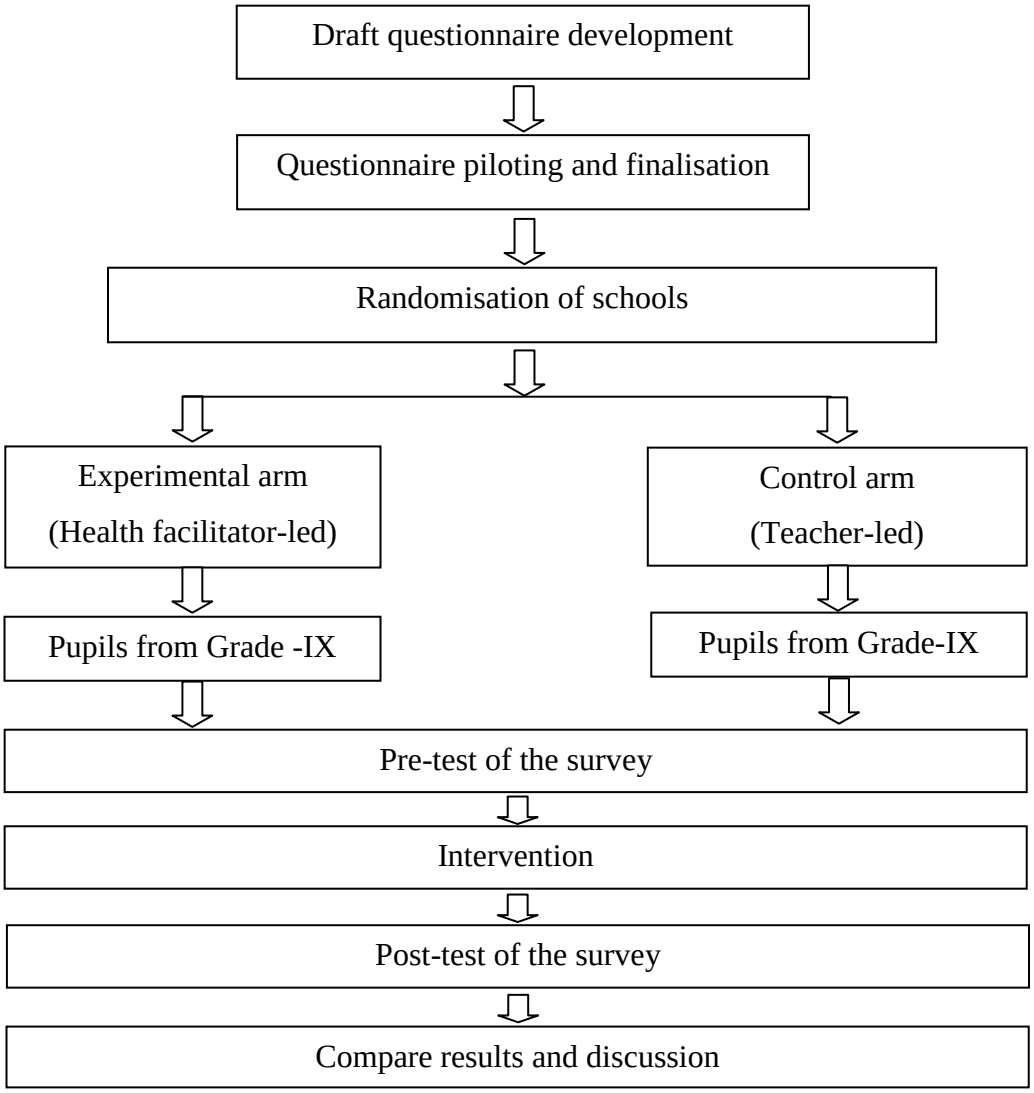
3.2.2 Trial endpoints

An outline of the research design is given in Table 3.1. This is an experimental research conducted among secondary school students of age 14-18 years in Hetauda, which is a small town in central Nepal. A total of four community-based secondary schools with no previous implementation of sex education programme were selected for the intervention. The intervention lessons were developed by the health facilitators with the support from the main researcher (Dev Raj Acharya) and a health expert from the District Education Office (DEO), Hetauda.

In the experimental schools, health facilitators delivered sex education programmes to Grade nine pupils following the school's existing sex education curricula. In the control school, conventional teachers did so. The post-test was conducted after the intervention. The time period between the pre-test and the post-test was seven weeks. The information was collected by self-administered questionnaires, which were completed by the pupils themselves in the classroom setting. At the end, the results

from control and experiment schools were compared to observe whether significant differences in the sexual health knowledge level of the pupils existed.

Table 3.1: Trial endpoints



3.3 Philosophical and pedagogical considerations

This section presents aspects of different learning theories most widely used in educational research to explore how young people learn new information. In this

study, it is particularly helpful to consider the application of relevant theories to how pupils learn and how health facilitators deliver sex education programmes in schools.

Brown (1992) explained that learning has its own meaning depending on the orientation of the definer and on the nature of learning. For example, behaviourists define learning as the modification of behaviour brought about by experience while cognitive psychologists define learning as the study of how information is sensed, stored, elaborated and retrieved (Watson, 1930). Similarly, constructivists argue that learning is primarily concerned with how people develop different conceptions and constructions of reality (Piaget, 1968). Each of these views has different implications for session design, methods of teaching, role of the teacher, the development of learning opportunities and methods of evaluation.

There are many approaches to learning in educational research however; this PhD study has reviewed some of the basic type of learning theories as shown below:

- Behaviourism
- Cognitive constructivism
- Social constructivism
- Social cognitive learning

3.3.1 Behaviourism

This theory was established by the behaviourist psychologist J. B. Watson who believed that behaviour is a function of its consequences (Watson, 1930). His principle was followed by B. F. Skinner (1938) who argued that scientific theories

should take into account only observable indicators such as stimulus-response sequences. According to Skinner:

> The mentalistic problem can be avoided by going directly to the prior physical causes while bypassing intermediate feelings or states of mind. The quickest way to do this is to consider only those facts, which can be objectively observed in the behaviour of one person in its relation to his [or her] prior environmental history.
>
> (Skinner, 1938: 23)

Skinner (1938) described knowledge as a repertoire of behaviours, which is a set of passive, largely mechanical responses to environmental stimuli. Knowledge, which is not actively expressed in behaviour, is explained as behavioural capacities (*ibid.*, 1938). For example, 'George knows a butterfly when he sees one' could be interpreted as effectively equivalent to 'George has the capacity to identify a butterfly although he is not now doing so'. This theory assumes that someone can understand something if they possess the appropriate repertoire (Watson, 1930). There are no places for cognitive processes in this theory (*ibid.*, 1930).

According to Ferster and Skinner (1957), pupils are presented with the appropriate repertoire of behavioural responses to specific stimuli and to reinforce those responses through an effective reinforcement process. If positive reinforcement is not provided then learned responses can quickly be lost, since the learners can modify their behaviour until they receive some form of positive reinforcement (Baum, 2005). As an example, a student who receives verbal appreciation and good grades for correct answers is more likely to learn those answers effectively than one who receives negative feedback.

Teaching methods in behaviourist theory mostly rely on so-called a 'skill and drill' exercise, which provide the consistent repetition for effective reinforcement of response patterns (Lattal and Chase, 2003). Some other methods include are questioning (stimulus) and answering (response) sessions in which questions are gradually made difficult, guided practice, and regular reviews of material (*ibid.,* 2003). Positive reinforcements such as verbal appreciation, good grades and prizes are mostly used with this method (Baum, 2005). The degrees of pupils' learning are measured in an observable behaviour such as exam performance (Rachlin, 1991).

These kinds of teaching method are mostly successful in areas where there is a correct response in structured teaching material such as facts and formulae, scientific concepts and foreign language vocabulary (Baum, 2005). However, there are other areas where the efficacy of behaviourist teaching methods are questionable such as teaching comprehension, interactive discussions, composition and analytical abilities (Rachlin, 1991). Behaviourists focus only on observable behaviours and always tend to prove right or wrong in the given experiment (*ibid.,* 1991). They ignore other perspectives of human life such as human biology, cognitive processes and social interaction (Lattal and Chase, 2003). The majority of behaviourists have drawn theories from animal testing; for example Skinner used pigeons in his experiment on operant conditioning that defined behaviourism theory (Skinner, 1938).This causes the findings to be less valid since humans are so much more complex than animals. This study proposes the delivery of sex education in a participatory way using different teaching methods. Therefore, the behaviourists' learning theory is less useful to enhance pupils' sexual health knowledge and understanding.

3.3.2 Cognitive constructivism

This theory aims to assist students to adapt new information and allow them to make the appropriate modifications to their existing knowledge to accommodate that new information (Piaget, 1968). Cognitive constructivists Jean Piaget (1968) and William Perry (1999) were dissatisfied with the behaviourists' strict focus on observable behaviour. Therefore, their approach to learning theory focused more on what goes on inside the student's head rather than on observable behaviour (Piaget, 1968; Perry, 1999). According to this theory, knowledge is actively constructed by learners based on their existing cognitive structures (Dasen, 1994). This means that learners' existing knowledge is viewed as a precondition of learning (*ibid.,* 1994).

Piaget (1968) argued that learning is considered a purely external process and children gain mastery of logical forms of thought by themselves. As an example Piaget asked some children - why does the sun not fall? The reason for asking the question was to obtain the pure form of children's thinking entirely independent of learning (*ibid.,* 1968). Each learner interprets experiences and information according to their existing knowledge, stage of their cognitive development, personal history and cultural background (Keating, 1979). Therefore, knowledge is actively constructed by the learner and learning is presented as a process of active discovery.

Cognitive constructivists do not drill knowledge into students through consistent repetition as behaviourists do (Dasen, 1994). Instead, teachers provide necessary resources and guidance to the learners as they attempt to integrate new knowledge to old and modify the old knowledge to accommodate with the new (*ibid.,* 1994). Thus, it is essential for teachers to take into account the learner's current knowledge when

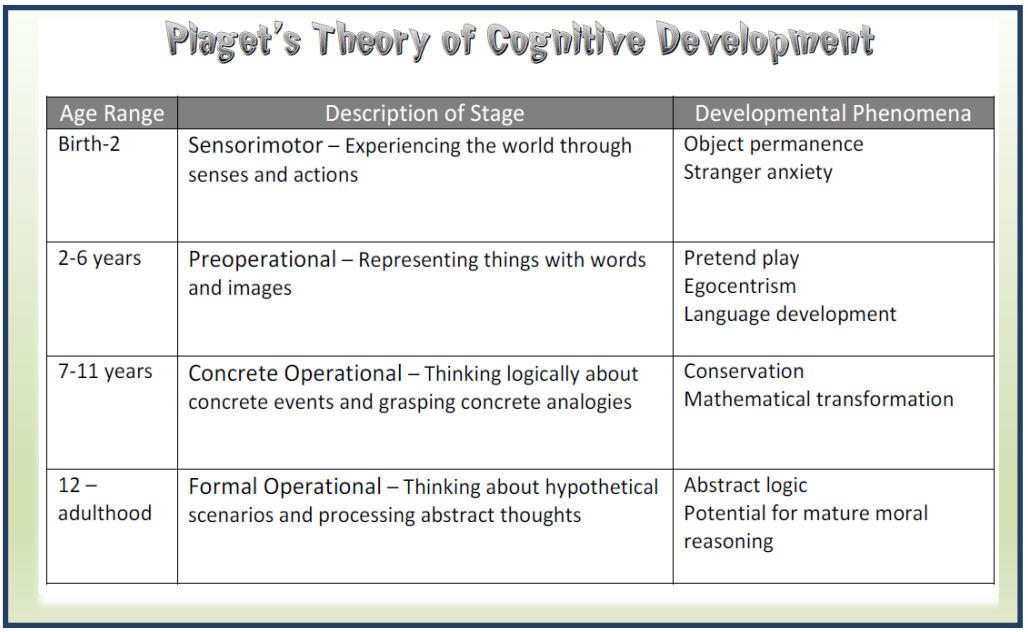
deciding how to design and develop the curriculum and to present the new materials to the pupil (Piaget, 1968). According to behaviourist learning theory, the learners are extrinsic while in the cognitive constructivist theory the learners are intrinsic (Perry, 1999). According to Perry:

> It involves significant restructuring of existing cognitive structures; successful learning requires a major personal investment on the part of the learner. Learners must face up to the limitations of their existing knowledge and accept the need to modify or abandon existing beliefs. Without some kind of internal drive on the part of the learner to do so, external rewards and punishments such as grades are unlikely to be sufficient
>
> (Perry, 1999: 54)

Cognitivists help students to receive new information and enable them to modify their existing knowledge framework to accommodate that new information (Perry, 1999). Cognitivists also allow for the use of 'skill and drill' exercises in the memorisation of facts, formulae and lists as behaviourists also do (*ibid.,* 1999). However, cognitivists place more importance on strategies to support learners to actively adapt and accommodate new information (Piaget, 1968). For example, students are asked to explain new information in their own words, which could help them in adapting and re-expressing the new information in their own vocabulary.

According to Piaget (1968) learning is a dynamic process, which is comprised of successive stages of adaption to reality, and learners actively construct knowledge by creating and testing their own theories. One remarkable work done by Piaget was the four stages theory of cognitive development as shown in Figure 3.1.

Figure 3.1: Piaget's four stages of cognitive development



Piaget's Theory of Cognitive Development

Age Range	Description of Stage	Developmental Phenomena
Birth-2	Sensorimotor – Experiencing the world through senses and actions	Object permanence Stranger anxiety
2-6 years	Preoperational – Representing things with words and images	Pretend play Egocentrism Language development
7-11 years	Concrete Operational – Thinking logically about concrete events and grasping concrete analogies	Conservation Mathematical transformation
12 – adulthood	Formal Operational – Thinking about hypothetical scenarios and processing abstract thoughts	Abstract logic Potential for mature moral reasoning

(Piaget, 1968: 8)

Piaget described four main stages in the cognitive development of children. Children pass through a sensorimotor stage in their first two years. During this period, they progress from cognitive structures to more organised systems of concrete concepts and their first external affective fixations (Piaget, 1968). At this stage, children are unable to take into account other's points of view. In the second stage of development (2 to 7 years) children begin to use language to make sense of reality, learn to classify objects using different criteria and initiate the manipulation of numbers. The linguistic skills provide the children with the ability to socialise and communicate with other people.

In the third stage of development (7 to 11 years), children begin to develop logic on concrete objects and events. Their thinking becomes less egocentric and they are more aware of external events. In the fourth stage (12 to adulthood) children enter

the intellectual development stage which continues throughout the rest of their lives. They can think about multiple variables in systematic ways and gain intellectual maturity. They learn how to formulate hypotheses without referring to concrete objects. One of the most important developments in this stage is that children have the capacity to appreciate other's points of view as well as their own.

In educational research, cognitive constructivism has been widely used to enhance peoples' knowledge and achievement. For example a study was conducted by Uzuntryak (2003) to study the effectiveness of instruction based on the constructivist approach on understanding chemical bonding concepts of students of aged 16. One of the classes was the experimental group and the other was a control group, and the study lasted for five weeks. All class activities were observed by the researcher in order to control teacher effect and bias in the study. The experimental group was taught based on Piaget's constructivist teaching approach while the control group used the conventional instruction method. The teacher was provided with information about the content and function of constructivist principles prior to the beginning of the intervention. A chemical bonding concept test was used as an instrument, which was provided as a pre-test to identify whether there was a significant contribution of previous learning to the variation in students' understanding of the concepts. At the end of the instruction, a post-test was done to compare the levels of conceptual changes in the two groups. The results indicated that instruction based on constructivist approach caused a significantly better acquisition of scientific conceptions related to chemical bonding and produced significantly higher positive attitudes toward chemistry as a school subject than the traditionally designed chemistry instruction.

Another study was conducted by Kingma and Koops (1983) to investigate the achievement tests of 312 school children from Grade 1 to 4 based on Piaget's cognitive constructivism theory. The study explored children's' initial arithmetic learning tasks (number line comprehension, number language and verbal arithmetic) compared with the conventional teaching approach. At the end of the same school year different types of these tasks were administered. The result indicated that the number line comprehension and verbal arithmetic tests were of better quality in the experimental group than in the conventional teaching group.

Some studies have revealed that constructivist teaching principle is also useful to help students construct their views about the subject and develop thinking ability. For example, Carey, Evans, Honda, Jay and Unger (1989) explored how prior to the constructivist methodology that included scientific inquiry, many students considered science as a way of understanding facts about the world. After applying the constructivist methodology, most of the students viewed scientific inquiry as a process led by questions and ideas.

Tynjala (1998) also found similar results. She compared learning outcomes of educational psychology students who studied traditionally with examinations and those who studied constructivist learning tasks without examination. Students in the constructivist group were given assignments that required transforming knowledge, activating previous knowledge, and comparing and criticising different theories. Students were encouraged to discuss their assignments in groups and to write an essay. Students in the other group were instructed by traditional methods. They

attended classes, studied the textbook on their own and had an examination. The findings indicated that students in the constructivist group acquired an ability to apply knowledge and developed their thinking and communication skills more than the traditional group.

3.3.3 Social constructivism

Social constructivism was developed by Vygotsky (1978) who rejected the idea made by Piaget and Perry (cognitive constructivism) that it was possible to separate learning from its social context. Vygotsky's theory of social learning has been expanded upon by numerous later educational theorists and researchers. This theory proposes that the learner's level of potential development is the level at which learning takes place. It encompasses cognitive structures of the learner that are still in the process of maturing but it can only mature under the guidance of or in collaboration with others (*ibid.,* 1978). Vygotsky (1978) argued that the learner's cognitive function is the product of social interactions and that learning is not simply the adaptation and accommodation of new knowledge. According to Vygotsky:

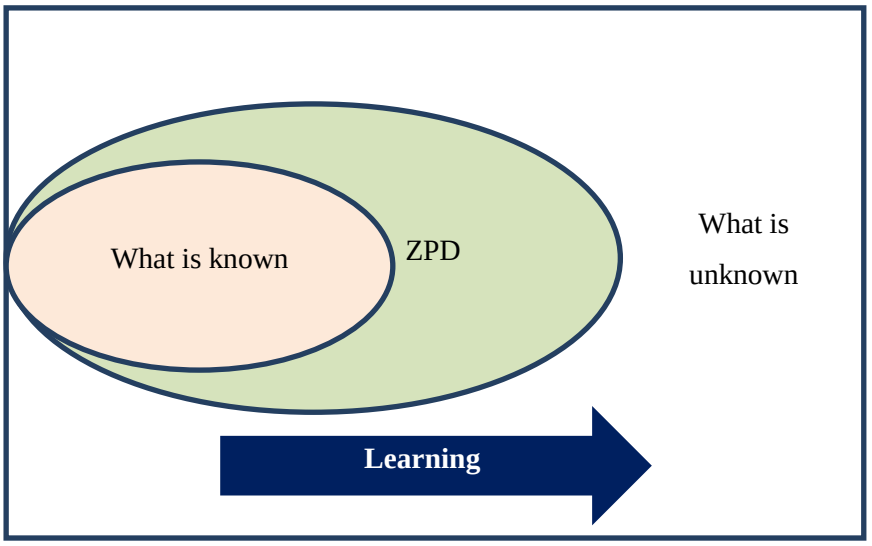
> Every function in the child's cultural development appears twice: first, on the social level and, later on, on the individual level; first, between people (inter-psychological) and then inside the child (intra-psychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals.
>
> (Vygotsky, 1978: 57)

This principle describes how a learner depends on others who have more knowledge and experience and how over time the learners take more responsibility for their own

learning and participation (Vygotsky, 1978). His work was further elaborated on by Lave and Wenger (1991) who emphasised that human activities take place in a cultural context, mediated by language and other symbol systems and could easily be understood by looking at their historical development. They emphasised that the role of language and culture both in cognitive development and in how human perceive the world is very important. Rogoff (1991) applied Vygotsky's learning theory in her cross-cultural studies and found that the children were involved in the adult world as participants in agricultural and household work without conversations with the parents. This suggests that the learners could participate in a wide variety of activities, which would provide them with the opportunity to synthesise their modes of learning and understanding of the world.

Vygotsky looked at the learning and development as the unity and interdependence unlike the other theorists of his time who dichotomised learning and development (Vygotsky, 1978). He argued that cognitivists failed to understand that learning is a collaborative process. To help explain how this collaborative learning takes place Vygotsky developed the concept of the Zone of Proximal Development (ZPD), which was well presented by Atherton (2013) as shown in Figure 3.2. It explains that the learner is capable of solving problems at the known level but is not capable of solving or understanding problems at the ZPD level. The ZPD is the level of potential development at which learning takes place with the help and guidance of knowledgeable person (active agent). Brown (1992) suggested that the active agent in the ZPD could include people, adult, experts, books, videos, wall displays and computers that are intended to support learners.

Figure 3.2: Vygotsky's Zone of Proximal Development (ZPD)



(Atherton, 2013)

According to behaviourism, a learner's motivation is essentially extrinsic and it is a reaction to positive and negative reinforcements (Skinner, 1938). In contrast, cognitive motivation is essentially intrinsic which is based on the learner's internal drive (Piaget, 1968). However, social constructivists consider motivation as both extrinsic and intrinsic (John-Steiner and Mahn, 1996). This is because learning is essentially a social phenomenon and learners are partially motivated by rewards provided by the knowledge community (*ibid.*, 1996). In addition, the learner actively constructs knowledge, and learning depends to a significant extent on the learner's internal motive to understand the learning process (*ibid.*, 1996).

Social constructivists employ collaborative learning methods, which require pupils to develop teamwork skills (Wertsch, 1985). In this method, individual learning is considered as important, since it is related to the success of group learning (*ibid.*,

1985). So, the classroom pupils are divided into smaller groups, provided with a topic to discuss in that group and present their findings to the whole class (John-Steiner and Mahn, 1996). In general, collaborative learning is considered as a process of peer interaction, which is mediated and facilitated by the class teacher (Damon and Phelps, 1989). Teachers encourage pupils to discuss the presentation of specific problems or scenarios with the help of directed questions and references to previously learned material (*ibid.,* 1989).

Many researchers have applied Vygotsky's social constructivism principle in the different disciplines of educational research. For example, Kinginger (2002) reviewed and interpreted Vygotsky's Zone of Proximal Development (ZPD) for foreign language teaching in the USA. The review comments on progressive and conservative trends in the foreign language profession, and on the reception of the construct in which the ZPD has been invoked on classroom teaching. In the USA, a conservative educational agenda is heavily influenced by progressive ideology, and emphasises efficient delivery of quantifiable and useful commodities in the form of skills (Scollon and Scollon, 1995). The reception of progressive ideas within contemporary liberal educational discourse presents a different and a more complex problem. It is clear that Vygotsky's pragmatic focus, intent and effects are progressively moving towards ideals of social reform (Kinginger, 2002). A broader understanding of the ZPD as an activity might assist the agenda of communicative language teaching where the role of the learners' is better conceptualised.

The construct of mediation is central to the socio-cultural theory of Vygotsky since it provides a means of studying social processes (Vygotsky, 1978). Gibbons (2003)

applied this theory to investigate how teacher-student talk in a content-based (science) classroom contributes to learners' language development. The data in this study were taken from two classes of 9 and 10 year old in an Australian school. One of the class teachers had previous experience of teaching English as a Second Language (ESL), and the other had trained in the socio-cultural theory of ESL teaching. In both classroom data were collected after completion of the 7 sessions, each session lasting for 45-50 minutes. Data sources included audio recording of discourse, print around the classroom, field notes and interviews with teachers and students. The findings of this study indicated that the process of mediation provided by the trained teacher helped students to learn the language more easily. The trained teacher also responded the ZPD as a starting point what the student could contribute to learn.

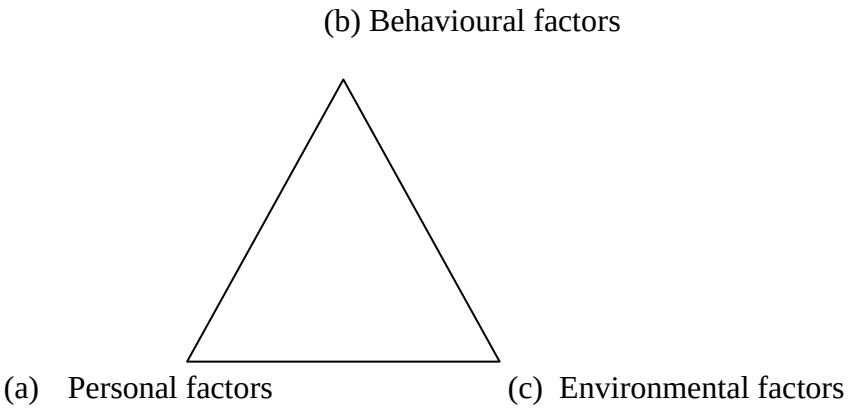
3.3.4 Social cognitive theory

This theory was developed by Bandura (2001) who emphasised the concept of self-regulation, which proposes that by visualising self-generated consequences, people can regulate their own behaviour. This theory mainly considers three products of a dynamic interplay that regulates humans. These are (a) personal factors, (b) behavioural factors, and (c) environmental factors (*ibid.*, 2001). These create an interaction, which results in triadic reciprocality as shown in Figure 3.3.

The common nature of these factors demonstrates that counselling efforts are possible to bring desired changes in human behaviour (Bandura, 2011). For example, teachers have the challenge of improving pupils' knowledge and developing the confidence to deal with any problems or concerns. Teachers work to improve pupils'

emotional states and correct their habits of thinking (personal factors). They could also improve their academic skills (behavioural factors) and modify the classroom arrangement to develop pupils' success (environmental factors).

Figure 3.3: Bandura's social cognitive theory



(Bandura, 2001: 2)

Social cognitive theory emphasises that individuals possess self-beliefs that enable them to exercise a measure of control over their thoughts, feelings and actions (*ibid.*, 2011). Self-belief organises the course of action, which is essential to carry out the types of performances (Zimmerman, 2000). People's motivation, well-being and personal accomplishment are dependent on self-belief, which influences an individual's thought approach (*ibid.*, 2000).

Gauvain (2010) emphasised that it is important to identify the specific social dimensions that shape the environment in which a child develops. The author further described how young people's sexuality is determined by a variety of social and biological influences, including the physical and psychological characteristics of the individual and the cultural contexts. The particular context of a given young person

shapes their decisions about sexuality and sexual attitudes, and cultural influences have a bigger impact than all other social contexts (*ibid.,* 2010). They determine the knowledge and beliefs of sex and sexuality, which affect the behaviour patterns of the developing person's socialising agents in specific environments (*ibid.,* 2010). For example, these socialising agents include peers, parents, mass media, family members, health promoters, teachers and advocacy groups (Kotchick, Shaffer, Miller and Forehand, 2001). The interaction between the developing person (young people) and the social agents influences the sexual understanding and behaviour of the young people in responsible decision-making (*ibid.,* 2001).

Given the diversity of influences young people draw on day-to-day interactions, it is not surprising that they demonstrate different kinds of behaviours. Bohner and Wanke (2002) have clearly indicated that young people make important decisions about sexuality, which are evident throughout their lives. These decisions are made in the context of the attitudes and values they hold. Attitude refers to a drive producing response that is considered acceptable in the individual society (*ibid.,* 2002).

According to Keating (1990), children are not born with attitudes but acquire them from the environment in which they grow up. Attitudes are not attributed to physical maturity (*ibid.,* 1990). Hence, this study takes the view that attitudes expressed by young people are a result of many influences that come from the environment in which they have developed. Burns (2010) described how adults pass on their values and attitudes to their children through the process of socialisation. Parents and teachers are important socialising agents in this respect and are also sources of

information about sexuality (*ibid.*, 2010). Young people also gain most of this information from their day-to-day interactions with their peers (Wood, Senn, Desmarais, Park and Verberg, 2002).

Young people need to be equipped with information and social skills, which would enable them to openly communicate their wishes and needs and could correct some misinformation. Studies of teenage communication about sexuality and contraception reveal that many teenagers fail to discuss these important issues during a sexual encounter (Klick and Stratmann, 2008). Girls, particularly, lack the skills to initiate a sexual discussion which leaves them vulnerable when their partners are adamant about having a sexual encounter (*ibid.*, 2008). Therefore, it is important to understand how sex education is conceptualised in policy and practice, as well as the context in which it is acquired.

Nepalese school teachers deliver sex education with a didactic approach where learners do nothing except listen to the teachers (Pokharel *et al.*, 2006). This kind of teaching method has failed to meet pupils' needs for more applied sexual health knowledge and life skills (*ibid.*, 2006). Thus, it is the task of this study to discover whether sex education programmes in Nepalese secondary schools are effective in equipping young people with adequate knowledge and understanding of crucial aspects of their lives. The revelation of inadequate knowledge and understanding among young people would make it necessary to change sex education programmes and practices. This would create an environment supportive of behavioural changes that could reduce the risks among young people in school.

A previous study conducted by Alldread, David and Smith (2003) found that certain pedagogical approaches to sex education could help young people's educational careers and academic achievements. Susan (2008) highlighted that discussion-based pedagogy has allowed pupils to shape the classroom experience to incorporate liberal views of psychological development and human relationships. In a recent review of sex education programmes, Kirby and Laris (2009) also highlighted that two thirds of the programmes that emphasised both abstinence and condom use have a significant positive impact on young people's sexual behaviour. Interestingly, many of those programmes developed the curricula based on social cognitive theory to identify the important mediating factors (*ibid.,* 2009).

Caron, Godin, Otis, and Lambert, (2004) conducted an intervention trial to evaluate the theoretically based AIDS/STD peer education programme on postponing sexual intercourse and on condom use among adolescents attending high school in Canada. The teaching method in the experimental school was based on Bandura's social cognitive theory, and included 698 junior and 306 senior high school students. The junior students were offered intervention by senior students who were trained during a course integrated into the school curriculum. Students in the control and experimental schools completed a self-completion questionnaire at baseline and nine months after the completion of the programme. Compared to the control group schools, pupils in the experimental group positively modified their attitude, perceived behavioural control, normative beliefs, respect to condom use, postponing sexual intercourse and developed the self-efficacy. The post-test findings indicated that pupils in the experimental group were more likely to use condoms on a regular basis than those in the control group. This suggests that social cognitive theory based

programme is effective in modifying psycho-social variables related to increasing sexual health knowledge and postponing sexual intercourse.

A randomised controlled trial was conducted to evaluate the efficacy of a theory-based sex education intervention over 24 months (Jemmott, Jemmott and Fong (2010). The intervention was based on Bandura's social cognitive theory. The participants were 662 African American students in Grade 6 and 7 who were recruited from 4 public middle schools that serve low-income African American communities in a city in the North-Eastern United States. These participants were recruited between September 2001 and March 2002. The 8-hour sex education intervention focused on peoples' sexual intercourse. The results indicated that the probability of ever having sexual intercourse by the 24-month follow-up was 33.5% in the experimental group and 48.5% in the control group. Fewer participants in the experimental group (20.6%) than control group (29.0%) reported having sexual intercourse in the previous 3 months during the follow-up period. This suggests that social cognitive theory based intervention may have an important role in increasing sexual health knowledge and preventing adolescent sexual involvement.

Social cognitive theory posits that person's knowledge acquisition could be directly related to the context of behavioural interactions, personal experiences and environmental influences (Bandura, 2001). In a previous study, Bandura (2004) clearly highlighted that belief in one's self-efficacy to exercise control is a common pathway through which psychosocial influences affect health functioning and this belief affects the process of personal change.

3.3.5 Vygotsky, Piaget and Bandura

There are some similarities between the various learning theorists (Vygotsky, Piaget and Bandura) which have been updated over the time period (Tudge and Winterhoff, 1993). For example, these similarities are the understanding of learning development, that individuals are cognitively active in the process of development, that they take into account the social factors both at the cultural and interpersonal level, the belief that maturation plays a critical role in development, and that they are highly critical of behaviourist theories (*ibid.*, 1993).

Bandura's social cognitive learning theory has been sufficiently modified over time and has been adapted by many researchers including educational and public health around the globe (Aarø, Schaalma and Åstrøm, 2008). One of the key concepts within social cognitive theory is that participants accept new knowledge and behaviour through observational learning and reinforcement and develop their own self-belief (Bandura, 2001). In this study, pupils in the experimental schools were divided into four groups and provided with slide pictures of Sexually Transmitted Infections (STIs). They were then asked to look carefully at the pictures and to discuss with other members in the group the causes and effects of STIs. This process helped them to develop their own self-belief and to gain new information about STIs (please see Appendix 2, lesson plan-11, p.xxiii).

Piaget's cognitive theory is widely used in the areas of child development mainly in educational research. The theory proposes that children learn through cognitive development and use 'schemas' or frameworks that exist in the individual's mind to organise and interpret information (Piaget, 1964). Children use mainly two processes

to adapt their schemas assimilation and accommodation. In this study, pupils were provided with information on the proper use of condoms, which helped them to assimilate new information to the existing knowledge framework. After that they were asked to demonstrate the condom use on a penile model which assisted them in accommodating the new information to their own environment (please see Appendix 2, lesson plan-12, p.xxv). Similarly, in the myths and facts about sexual risk session pupils' existing knowledge (myths) was assimilated with the new knowledge (facts).

Vygotsky's Zone of Proximal Development (ZPD) principle helps pupils to learn new information with the support and guidance from adults or more-skilled persons (Davydov and Radzikhovskii, 1999). The concept of the ZPD is now widely used in education research to study children's mental development (*ibid.*, 1999). In this study, the participants were divided into three groups and each group received a different set of meta-cards with information about sexual risk reduction. Next, each group of pupils were asked to perform a role-play according to the information provided on the meta-cards. In this case, the pupils were not able to perform the role-play, since they had had no such experience before. Therefore, the health facilitator instructed and provided appropriate guidance to pupils on how to perform role-play and how to communicate with other members in the group while discussing sexual risk reduction issues (please see Appendix 2, lesson plan-9, p.xix).

This PhD study has a clear focus - to examine pupils' belief in self-efficacy in exercising sexual health knowledge and understanding. Given the different examples of the activities, a mix of the three learning theories of Vygotsky, Piaget and Bandura

is intended to be a suitable pedagogical approach to develop the sex education lessons to be implemented in the experimental schools.

3.3.6 Learning styles

The concept of learning styles in the classroom has steadily gained influence among professional educators at all levels of the educational system (Pashler, McDaniel, Rohrer and Bjork, 2008). Learning style is described as an individual's natural pattern of receiving and processing information in learning conditions (James and Gardner, 1995). It is a concept that supposes each individual differs in which mode of teaching is most effective for them (*ibid.,* 1995).

There are different theories of learning styles used in educational research such as experiential theory (Kolb, 1984), Honey and Mumford's model (Honey and Mumford, 2006) and Neil Fleming's VAK/VARK model **(**Hawk and Shah, 2007). However, the three learning modalities developed by Barbe, Swassing and Milone (1979) are mostly used in educational research. This is because they consider the sensory preferences of the students, which affect more than 70% of school-age children (Dunn, Beaudry and Klavas, 1989). These three learning styles are visual, auditory and kinaesthetic.

Visual learners look at different cards, colours, images and tables, which may help to organise and communicate their thoughts in writing (Barbe *et al.*, 1979). The auditory learners hear the material over and over and may express their thoughts better through verbal communication (*ibid.,* 1979). Similarly, kinaesthetic learners concentrate on the material to be learned for a short period and move around for the

exposure (*ibid.,* 1979). The kinaesthetic learners prefer to do experiments and express themselves by creating something related to the material (*ibid.,* 1979). So, it is important for a researcher to understand that learners are unique in the way that they approach learning. Petty (2009) has also emphasised that students retain most when actively involved in the classroom and engaged with active methods (e.g. discussions, quizzes, contests, demonstrations) which are most enjoyable and most effective.

During the intervention of this study, all three learning styles of teaching were used (visual, auditory and kinaesthetic) in the experimental schools to deliver effective information. This means the young people received the knowledge in a participatory way (e.g. group discussions, role-plays, demonstrations, card games, quizzes, displays and news sharing) which was demonstrated and reinforced by the health facilitators. It is an interactive teaching style, which engaged pupils to learn more actively to equip them with sex education to minimise sexual health risks.

3.4 Research methods

A research method is simply a technique for collecting data (Bryman, 2008). This study has included both quantitative and qualitative data collection methods for the purpose of analysis. There is little doubt that both approaches are needed to enhance the validity of the study (WHO, 1993). Using quantitative and qualitative methods to explore the specific topic allows further investigation from a number of perspectives (Tashakkori and Creswell, 2007). It is a dynamic option that could produce resourceful research findings that expand, improve and advance the analytic power of individual studies (*ibid.,* 2007).

Quantitative methods rely on structured data collection instruments, which provide easily summarised numerical results (Bryman, 2008). This method emphasises objective measurements through questionnaires or surveys. The quantitative method is concerned with hypotheses testing and estimates the size of the phenomenon of interest (*ibid.*, 2008). In contrast, qualitative methods are characterised by an open procedure, which is concerned with meanings and the ways in which people understand things (Bowling, 2006). Qualitative methods aim to understand reality and allow people to express their opinions and their life experiences (*ibid.*, 2006). Qualitative methods are more flexible which allow greater freedom and variation of the interaction between the researcher and the study participant (*ibid.*, 2006). Data analysis in qualitative research, however, is ambiguous and time consuming (Bryman, 2008).

A number of previous studies have used quantitative and qualitative data collection method. Thomas and Keirle's (2001) conducted a study in two stages and involved 23 randomly selected secondary schools in Wales. The first stage was accomplished between 1995 and 1996 and involved semi structured key informant interviews. The second stage was conducted 31 months later between 1998 and 1999 and used a postal survey questionnaire with the same people. They applied a randomisation process to select the sample of the study (*ibid.*, 2001), which is similar to this PhD study. The interval period between the two stages, though, is different to this study.

Vuttanont (2010) conducted a mixed method study to redesign of sex education policy in Chiang Mai (Thailand). The study selected six secondary schools and

explored the sexual health knowledge and attitudes of pupils, parents, teachers and policy-makers to place the findings in the wider educational context of modern Thailand. The mixed method study included semi-structured interviews with key stakeholders, and questionnaire survey and focus group discussion with pupils. Quantitative and qualitative data were assessed separately with statistical and thematic analysis, and outcomes were compared and discussed.

In this study, the quantitative method asked how many young people showed defined sexual health knowledge and understanding, but did not answer the question why they do what they do. However, the qualitative method asked open-ended questions about school sex education and the participants were free to respond in their own words. Denscombe (1998) argued that the use of qualitative and quantitative method in research has the advantage of collecting more data, thus improving the quality of the research.

3.4.1 Research instruments

This study engaged four specific types of research instruments for data collection as performed in a previous school sex education study conducted in the UK by Stephenson, Strange, Forrest, Oakley, Copas, Allen, Babiker, Black, Ali, Monteiro and Johnson (2004). These included a self-completion questionnaire for pupils in the classroom setting (please see Section 3.4.1.1, Appendix 3, p. xxxiv), a semi-structured FGD with pupils in schools (please see Section 3.4.1.2, Appendix 4, p. xlii), a semi-structured KII with parents and school teachers (please see Section 3.4.1.3, Appendix 5, p. xlv) and participant observation (please see Section 3.4.1.4)

where the main researcher listened to and watched the participants during the intervention.

It is evident that the Nepalese societies have many strong traditional norms and beliefs about sex and sexuality (Regmi *et al.,* 2010). Moreover, young people also feel embarrassed talking about sexual health with parents, relatives and community members (*ibid.,* 2010). Therefore, prior to the development of research instruments, the sensitivity of the people, culture and society in relation to the research topic must be considered (Thato, Jenkins and Dusitsin, 2008). In this PhD study, the self-completion questionnaire, FGDs and KIIs all were designed and developed on the grounds of the cultural sensitivity of Nepalese society. FGD and KII guides were accessed through a recent qualitative research conducted among young people in central Nepal (Regmi, 2010). A minor revision was made to this guide and it was translated to Nepali by the main researcher and it was used to conduct FGDs and KIIs in this study.

3.4.1.1 Self-completion questionnaire

Bowling and Ebrahim (2005) have described that the most common way of obtaining self-reports of sexual health knowledge and behaviour is a formal questionnaire survey with closed or open questions. This study used a structured self-completion questionnaire to collect unambiguous and easy to count pupil responses, leading to quantitative data. The questionnaire was used among other techniques (diary, interview and case study) since this study intended to explore pupils' sexual health knowledge and understanding doing statistical analysis of the intervention data (Munn and Drever, 1990). It asked standardised questions on knowledge more

efficiently as all pupils were presented with the same questions in the pre- and post-test (*ibid.,* 1990). The self-completion questionnaire has some other advantages as follows:

- It does not involve direct questioning of the respondents.
- It lessens the chances of omitting questions.
- It reduces the risk of respondent fatigue, which adversely affects the quality of the data.
- Self-completion questionnaires are the cheapest method to get responses.
- It represents the quickest way to send and distribute many questionnaires at a time.

(Cohen *et al.,* 2011: 404)

Considering the sensitivity of the topic, gathering information via a self-completion approach was probably the least intrusive (Bryman, 2008). There are also some disadvantages associated with self-completion questionnaires. These are:

- If the participants have difficulty in answering the question, there is no one to help them.
- If the participants find unclear and ambiguous questions difficult to understand, they do not answer them.
- Probing is very helpful to get more responses from the respondent; however there is no opportunity to probe elaborate answers.
- Respondents become tired of answering questions they feel are boring or unimportant.
- Some respondents may read the entire questionnaire before answering the initial question which means they may not respond in the correct order.

(Cohen *et al.,* 2011: 405)

Crombie (1996) clearly highlighted that respondents could complete the self-completion questionnaire when they wanted to and their answers should not suffer from the presence of the main researcher. The layout of the questionnaire should be as short as possible and attractive to make it more user-friendly to encourage pupil participation (Dillman, 1983). It has the advantage of collecting information from many respondents within a limited time period (*ibid.,* 1983).

Despite having a number of disadvantages, the self-completion questionnaire was used in this study. This is also because pupils could feel confident in openly expressing their views about sexual health matters while in the classroom. It was developed just enough for a pupil to complete within an hour with no strain.The main researcher handed out the questionnaires to the pupils, left the classroom and came back an hour later to collect them. The pupils were free to provide information, since they were assured of their anonymity and confidentiality. All pupils answered questions by completing the questionnaire themselves. The questionnaire had five sections (1) Socio-background characteristics of the pupils such as age, sex, ethnicity, and parents' education (2) Sources of sexual health information (3) Sexual health awareness level (4) Level of knowledge and understanding and (5) Sexual health norms and beliefs.

3.4.1.2 Focus Group Discussions (FGDs)

FGDs were used to obtain qualitative information from other small group of pupils from the participating four intervention schools. The FGDs were used because pupils feel comfortable sharing their views in a small group (Cohen *et al.,* 2011). FGDs investigated pupils' complex sexual health knowledge and behaviour and discovered

how different pupil think and feel about a topic and why they hold certain opinions (*ibid.,* 2011).

The FGD has become more popular in social sciences and behavioural research (Hennink, 2007) and, is a more commonly used method of data collection in health and health related research (Bryman, 2008). It has the advantage of using group dynamics to encourage discussion, gain insights and generate ideas and so pursue a topic in greater depth (Bowling, 2006). Concurrently, most social science and educational researchers often rely on FGDs to collect data from multiple individuals (Onwuegbuzie, Dickinson, Leech and Zoran, 2009).

According to Acocella (2012) FGDs could include collective activity, social events, interaction and organised discussion. They are also well known as a group of individuals selected by researchers to discuss personal experiences (Powell and Single, 1996; Acocella, 2012). They could be used at the preliminary or exploratory stages of a study, or during a study, to evaluate or develop a particular programme of activities, or after a programme has been completed to assess its impact or to generate further avenues of research (Race, Hotch and Parker, 1994). They could be used either in their own right or to complement other methods or for data triangulation (Morgan, 1997).

A typical FGD contains between about 6 and 12 participants (Bowling, 2006). Size could range from as few as 4 to as many as 12, depending on the research purpose (Litosseliti, 2003; Krueger and Casey, 2009). However, it is advised that groups be small enough for everyone to have the opportunity to share their feelings and

experiences (Bowling, 2006). Litosseliti (2003) argued that FGDs are particularly useful for exploring participants' knowledge and experiences, for generating ideas, exploring controversial issues and for gathering different perspectives on the same topic. They are also useful for ascertaining the reasons why participants may hold certain beliefs.

The FGD method has often been applied when studying sexuality and has been found valuable in accessing young people's opinions about sex and sexuality (Robinson, 1999; Roberts, Oyun, Barnasan and Laing, 2005; Reid and van Teijlingen, 2006; Regmi *et al.*, 2010). One of the key benefits of using FGDs to investigate sex-related attitudes and behaviour is that they allow access to the language and vocabulary that participants commonly use and the information can be used to develop effective questionnaire items (Frith, 2000). There are many advantages of this method, including some limitations as shown in Table 3.2.

Table 3.2: Strengths and weaknesses of the FGDs

Strengths

- Participants are exposed to a range of opinions.
- Group members prompt the responses.
- No one person has to speak on every issue.
- Deliberation in group discussion (i.e. the more extreme first answers may be moderated).
- Semi-structured research environment.
- Cost-effective compared to one-to-one interviews.
- Facilitator and group member both have an opportunity for follow-up.
- Helps develop theory.

Weaknesses

- Bringing participant together/organising meeting is time consuming.
- Expensive.
- Could be dominated by group members with strong personality, opinion or just loud voice.
- Compared to conducting interviews there is less time for each individual to express ideas.
- Risk of ending up with conformity - minority views might not be expressed, or not be presented as strongly, as they might be in an interview.
- Needs a skilled facilitator.

(van Teijlingen and Pitchforth, 2006: 30)

The main limitations appear to be bias and manipulation, false consensus, difficulty in making generalisations and difficulty in analysing and interpreting results. It is strongly suggested that three to four groups per category are adequate to reach data saturation (Krueger and Casey, 2009).

In this study, the FGD was held with single-sex group pupils from the control and experimental secondary schools (please see Section 3.7.8 for details) so that the atmosphere would be inclusive and relaxed (Bowling, 2006). Since the topic 'sex education in school' is more sensitive, controversial and complex, a smaller group of pupils (approximate size of 8 to 10 pupils per group) was recruited to take part in the discussion (Morgan, 1997; Litosseliti, 2003). The data was collected using a digital recorder together with a high quality microphone (Krueger and Casey, 2009). The main researcher brought the data collection to a halt when the majority of the analytic categories had been saturated, since there was little point in continuing the

discussion after that (*ibid.*, 2009). The findings from the FGD helped to triangulate the findings from the intervention questionnaire.

This study adopted a discussion guide for the FGDs, which had previously been used in qualitative research to explore young people's attitudes towards sexual health knowledge and behaviour in Nepal (Regmi, 2010). The aim of the discussion guide is to act as a memory aid for the main researcher to assist in managing the discussion around a range of key topics. The discussion guide links the questions to wider contexts and frameworks by generating discussions (Hennink, 2007). A brief discussion guide for the Focus Group Discussion is attached in appendix 4, p. xlii.

3.4.1.3 Key Informant Interviews (KIIs)

This study also used KIIs (parents and school teachers), which are considered a flexible and powerful qualitative method for exploring sensitive areas of research, such as sex education (Britten, 2006). The KII is an interviewing process where respondents are interviewed individually which allows for the subject matter to be explored in greater detail (*ibid.*, 2006). Such kinds of interview have been used extensively for data collection across health, social and educational research (Britten, 2006; Regmi *et al.*, 2010; Simkhada *et al.* 2010). It is believed that KIIs are more relevant for generating valid information, since they allow the researcher to understand participants' views from their own point of analysis (Williams and Heikes, 1993).

KIIs are often freely structured to allow the respondents free rein to expand on the issues and allow them to tell their own stories in their own words with

prompting from the main researcher (Britten, 2006). The advantages of KIIs are that more complex issues can be probed, responses can be clarified and a more relaxed research atmosphere may obtain more in-depth information (Bowling, 2006). One of the major advantages of the KII method is that the main researcher can be flexible and interact with the participant for further clarification even after the interview (*ibid.,* 2006).

The main researcher has a greater chance of observing participants' body language, voice reaction, reaction to the interview setting and personal appearance, which are all contextual factors that could assist in analysing the interview data (Bryman, 2008). It is a qualitative approach which is flexible, semi-structured and has much greater interest in the interviewee's point of view (*ibid.,* 2008). The main researcher could depart from any used schedule, may interview on several occasions and could ask any new questions, which vary the wording of questions in the interview (*ibid.,* 2008). This is a life history method, where personal accounts are used, such as the inner experience, how they interpret, understand and define the world around them (Bowling, 2006).

It is very important to know about the kinds of questions to be asked in KIIs. Kvale (1996: 3) has suggested nine main questions to be considered in qualitative interviews: 1. introducing questions, 2. follow-up questions, 3. probing questions, 4. specifying questions, 5. direct questions, 6. indirect questions, 7. structuring questions, 8.silence, and 9. interpreting questions. Listening is the main ingredient of the interview method and the researcher should be attentive to what the interviewee is saying (*ibid.,* 1996). It is important to know that the type of questions asked varies

at different stages of the interview. There are three main applicable stages in the qualitative interview - an initial open-ended question, intermediate questions and the ending questions (Charmaz, 2002).

KIIs are also not free from pitfalls. They are likely to entail much more fleeting contacts and they depend primarily on the verbal behaviour of the respondents (Bryman, 2008). There is also the chance of main researcher bias in the KIIs which is a great disadvantage of this method (*ibid*, 2008). However, such bias may be reduced if respondents understand and value the research objectives and appreciate the negative consequences of providing inaccurate or incomplete information (Gregson, Zhuwau, Ndlovu and Nyamukapa, 2002).

In this study, the KIIs were held with pupils' parents and participating school teachers (please see Section 3.7.9 for details). The main researcher formulated a semi-structured interview schedule that helped to answer the main research question (please see Appendix 5, p. xlv). The questions on the schedule might not be asked in a strict order, since they are just a guide to be discussed in the interview. The interviewer has the flexibility of reframing the different questions depending on the flow of the interview (Bryman, 2008). The findings from the KII were triangulated with the findings from the self-completion questionnaire in the discussion.

3.4.1.4 Participant observation

Observation is widely used as a means of data collection and provides the researcher an opportunity to gather live information from naturally occurring social interactions (Cohen *et al.,* 2011). The observation data is useful for obtaining non-verbal

behaviour of the participants, which enables the researcher to understand the situation of the intervention. This study used an unstructured observation to look for the situation in the intervention schools to review the process of sex education delivery and pupils' responses (*ibid.*, 2011). The main researcher's presence was clear and overt to the intervention schools.

The main researcher observed the selected experimental and control schools to look at the key processes in the implementation of the sex education programme. These also included identification, selection and training meetings with health facilitators. The purpose of the observation was to gather detailed information in which conventional teachers and health facilitators delivered the sessions and interacted with the pupils. The main researcher observed the selected four schools (please see Section 3.7.2) to look at the key processes in the implementation of the sex education programme. Observation was also made while identifying, selecting and organising meetings with the health facilitators (please see Section 3.7.5).

In the experimental school, the sessions started with lectures on the particular topic, followed by illustrations from flip charts and other visual materials, group discussions and, if possible, role-play. The classroom was interactive and pupils looked forward to knowing more about the topic. On the other hand, the method of delivery by conventional teachers was purely based on lecture, with no discussions and no visual materials used. During normal conventional lessons, pupils were not encouraged to ask questions, this was particularly the case for girls.

3.4.2 Development of the intervention lessons

Before the development of intervention lessons, an orientation training programme was organised for the health facilitators with the help of sexual health expert from the District Education Office (DEO) Hetauda. The training was aimed to provide basic knowledge and skills to health facilitators to develop, design and deliver sex education sessions in experimental schools. After the training, the health facilitators met again and finalised the lesson plan based on the school curricula for sex education for Grade nine following Vygotsky, Piaget and Bandura's cognitive theory pedagogy. The following topics were covered in the lesson plan (please see Appendix 2, p. iii for detailed lesson plan):

Day-1: Adolescence (physical and mental changes)

Day-2: Adolescence (emotional and social changes)

Day-3: Needs and demands of adolescents

Day-4: Problems of adolescence

Day-5: Management of adolescents' problem

Day-6: Sex education

Day-7: Sex and sexuality

Day-8: Myths and facts about sexual risks

Day-9: Negotiating sexual risk reduction

Day-10: Facts about HIV/AIDS

Day-11: Facts about STIs

Day-12: Facts about condom use

Day-13: Reproductive system (male)

Day-14: Reproductive system (female)

Day-15: Menstruation, pregnancy and childbirth

Day-16: Revision of the lessons

The health facilitators coordinated with other agencies and gathered the required materials to be used in the classroom (e.g. flip charts, models, posters, leaflets, flash cards, news articles). Each health facilitator and conventional teacher delivered a total of 16 lessons to Grade 9 pupils for 6 weeks (3 lessons for 5 weeks and 1 lesson for week 6) each session lasted for 45 minutes.

3.5 Ethical issues and informed consent

The data collection in this study was kept confidential and no school or individual were identified in the results presented. The professional protocol has also concurred that no one deserves harm or humiliation when doing research practice.

> The single most likely source of harm in social science inquiry is the disclosure of private knowledge considered damaging by experimental subjects.
>
> (Lincoln and Denzin, 2000: 138)

Confidential sexual health education in schools is one of the ways in which schools help their pupils to stay safe and avoid health outcomes that have a negative impact on their learning (NCB, 2007). This study adheres to the research governance policy as set out by Nepal Health Research Council (NHRC) and Aberystwyth University ethics committee requirements. BERA ethical guidelines for educational research (2011) has highlighted that all educational research should be conducted within an ethical respect for the person, knowledge, democratic values, quality of educational

research and academic freedom. Considering the BERA guidance, all necessary ethical requirements, including NHRC approval (please see Appendix 1, p. ii), were sought and completed before the collection of the data from the schools.

A letter describing the purpose of the research was sent to the parents and their consent was obtained to involve the child in this study (Appendix 7, p. xlvii). Pupils were also asked to give their consent to take part in the study prior to the intervention starting (please see Appendix 6, p. xlvi). They had the right to withdraw from the research study itself or withdraw responses to questions they did not want to reply to. The following things were considered while seeking consent from the study participants and their parents:

- A statement that the participants, without giving reason and without fear, could pull out from the study at any time.
- A guarantee of the confidentiality of the research participants.
- A statement indicating that the participants have understood all the information in the consent form and are willing to participate in the research.
- Signature space for the parents (on behalf of the pupils) and the date.

All the information and the consent form were written in the Nepali language. The main researcher had the sole responsibility for obtaining the informed consent. The information collected from this study was only to be used for the purposes of this research and would be kept confidential. The participants were told that all the recorded tapes, questionnaires and recorded papers would be kept in a safe place and would be destroyed three years after completion of this study.

3.6 Questionnaire piloting

Pilot studies could refer to so-called feasibility studies which are small scale trials done in preparation for the main study (Polit, Beck and Hungler, 2001) or to pre-test a research instrument (Baker, 1994; Corbetta, 2003). One of the purposes of conducting a pilot study is to assess whether the instruments are inappropriate or too complicated for participants (Polit *et al.,* 2001). It tests the expression, the order of the questions and the range of other possible answers. However, it is particularly essential to provide clear and concise instructions for the entire questionnaire, as well as individual questionnaire items, in order to avoid any misinterpretation (*ibid.,* 2001).

Very little research exists on sexual health knowledge and practices among pupils in Nepal and no randomised controlled trial has explored the effectiveness of teaching sex education in schools (Stone *et al.,* 2003; Acharya *et al.,* 2009). Until this study, there were no pre-tested self-completion questionnaires for school interventions that could be used to explore the sexual health knowledge of pupils. Therefore, a draft questionnaire (52 items) was developed for the intervention considering the social, cultural and demographic characteristics of Nepal on the basis of previous studies conducted elsewhere (Stone *et al.,* 2003; Stephenson *et al.,* 2004; Ahmed, Flisher, Mathews, Mukoma and Janse, 2009).

Pilot studies are conducted for a range of different reasons, as shown in Table 3.3. However, this study was undertaken in the spirit of the words of De Vaus (1993:54) "do not take the risk, pilot test first''.

Table 3.3: Reasons for conducting pilot studies

- Developing and testing adequacy of research instruments.
- Assessing the likely success of proposed recruitment approaches.
- Identifying logistical problems, which might occur using proposed methods.
- Collecting preliminary data.
- Determining what resources (finance, staff) are needed for a planned study.
- Assessing the proposed data analysis techniques to uncover potential problems.
- Developing a research question and research plan.
- Training a researcher in as many elements of the research process as possible.
- Convincing funding bodies that the research team is competent and knowledgeable.
- Convincing funding bodies that the main study is feasible and worth funding.
- Convincing other stakeholders that the main study is worth supporting.

(van Teijlingen and Hundley, 2001: 2)

The aim of the pilot study was to develop and validate a school-based sexual health questionnaire (SHQ) to be used for the intervention programme of this study. Three schools were identified for the questionnaire piloting with support from the District Education Office (DEO), Makwanpur. The socio-background status of the pupils of these schools was similar to the pupils of the intervention study site schools. The piloting schools were 4 to 6 kilometres away from Hetauda city the main intervention study site.

The data was collected from 9 sexual health experts (please see Section 3.6.1 for content validity) and 210 Grade nine pupils (please see Section 3.6.2 for factor analysis). Participants were asked for feedback to identify irrelevant and difficult

questions (Peat, Mellis, Williams and Xuan, 2002). The average time for questionnaire piloting for the pupils was set at 45 minutes and all of them completed the questionnaire within this time period. The sexual health experts were handed the questionnaire and asked to review it and bring it back the next day with possible comments and feedback.

3.6.1 Content validity

A content validity test determines whether the content of the questionnaire is suitable and applicable to the study's purpose. It is generally undertaken by seven or more experts (Pilot and Hunger 1999). Experts review the questionnaire to identify potential problems and classify them to specific points where difficulties may occur (DeVon, Block, Moyle-Wright, Ernst, Hayden, Lazzara and Kostas-Polston, 2007).

In this test, nine purposely chosen sexual health experts (three school health teachers other than of the intervention schools, four sexual health programme managers and two sexual health counsellors) were asked to review the draft sexual health questionnaire (52 items). These experts individually rated the significance of each questionnaire on the four-point Likert scale (1=not relevant, 2=somewhat relevant, 3=relevant, 4=very relevant). To estimate the validity of the questionnaire, the Content Validity Index (CVI) was calculated (Lynn, 1996). In this analysis, 8 items could not meet the level of endorsement ≥0.89 (8/9=0.89) required to establish content validity (please see Appendix 9, Table 1, p. xlix).

3.6.2 Factor analysis

The factor analysis used in the self-completion questionnaire data was obtained from 210 Grade 9 pupils. The questionnaire had 44 items remaining (52 minus 8) on the five-point Likert scale (1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree). The five-point Likert scale has a middle neutral point, which asks the respondents to think about which side they prefer to go for the answers (Komorita, 1963). However, the five-point Likert scale was converted into a three-point Likert scale for the purpose of convenient data analysis (Aalbers, Hommes, Rethans, Imbos, Muijtjens and Verwijnen, 2013).

Prior to the factor analysis, a plausibility check was performed on the 44 questionnaire items to avoid erroneous information in the data (Kröz, Feder, von Laue, Zerm, Reif, Girke and Heckmann, 2008). Erroneous information and inconsistencies within the questionnaire items include entries that are unreasonable and those that are impossible to further analyse (*ibid.,* 2008). In this analysis, 3 socio-background characteristics questionnaire items were excluded, as they were rated unimportant by the plausibility check (*ibid.,* 2008) (please see Appendix 9, Table 2, p. xlix).

Factor analysis transfers to the degree to which the questionnaire items on an instrument relate to the appropriate theoretical construct (Kane, 2001; DeVon *et. al.,* 2007). It is a statistical method commonly used during research instrument development. The factor analysis clusters items into common factors and interprets each factor according to the items having a high loading (Field, 2005). Loading consigns the measure of association between an item and a factor (*ibid.,* 2005). A

factor consists of a list of questionnaire items that go together (Munro, 2005). Related items describe the part of the construct and can be grouped together. Unrelated items are those, which do not go together, and these are deleted (*ibid.*, 2005).

In this study, Principal Component Analysis (PCA) was used which is the most common form of factor analysis and analyses the total variance of a variable (Field, 2005). Total variance consists of both specific and common variance. Common variance is described as the variance shared by the scores of subjects with the other variables and specific variance is described as the specific variation of a variable (*ibid.*, 2005).

Following the plausibility check, 41 questionnaire items remained (44 minus 3) which also included 6 socio-background questionnaire variables. However, socio-background variables were not considered important for the factor analysis (Parsian and Dunning, 2009). Therefore, only 35 questionnaire items were examined to assess the overall reliability and correlation among variables and its significance. These tests invalidated 11 questionnaire items 6 questions for overall reliability (please see Appendix 9, Table 3, p. l) and 5 questions for correlation coefficient and the significance between all pairs of questions (please see Appendix 9, Table 4, p. l).

The remaining 24 questionnaire items (35 minus 11) were further analysed, based on communalities (>0.5) and total variance to determine how many factors should be retained when the sample of respondents are $\geq$ 200 (Kroz *et al.*, 2008). This analysis removed a further 6 questionnaire items (please see Appendix 9, Table 5, p. li) leaving only 18 questions (24 minus 6) with four factors (please see Appendix 9,

Table 6, p. lii). This study used 24 questionnaire items (18 from factor analysis plus 6 socio-background variables not included in the factor analysis) divided into five sections (please see Appendix 3, p. xxxiv).

3.7 Conduction of the study

3.7.1 Intervention participants

It is observed that participant recruitment and follow-up in Randomised Controlled Trials (RCTs) are often difficult (Spring, 2007). However, good preparation and close on-going observation could bring a significant result in the expected outcome (*ibid.*, 2007). In this study, the participants were school students in Grade 9 (14 to 18 years) from Hetauda municipality where they live and whose parents allowed them to participate in the study. They were identified with the help of the District Education Office (DEO), Makwanpur and head teachers in the participating and neighbouring schools.

There were no financial incentives offered to either schools or students, since this would have raised questions about the external validity of the research. In addition, questionnaire items were kept brief and on-going progress evaluations were conducted to monitor the problems of dropping out. Finally, it was ensured that all participants completed the post-test questionnaire form.

3.7.2 Participants' eligibility criteria

Inclusion and exclusion criteria define who could be included or excluded in the given study sample (West and Spring, 2011). The criteria should relate to the research question being answered to ensure that the research results are externally

valid (*ibid.*, 2011). It should be restrictive enough to narrow the sample, while being broad enough to generalise the findings to the wider population of interest (Bryman, 2008). A reliable and valid inclusion and exclusion criteria reflect the wider population of interest.

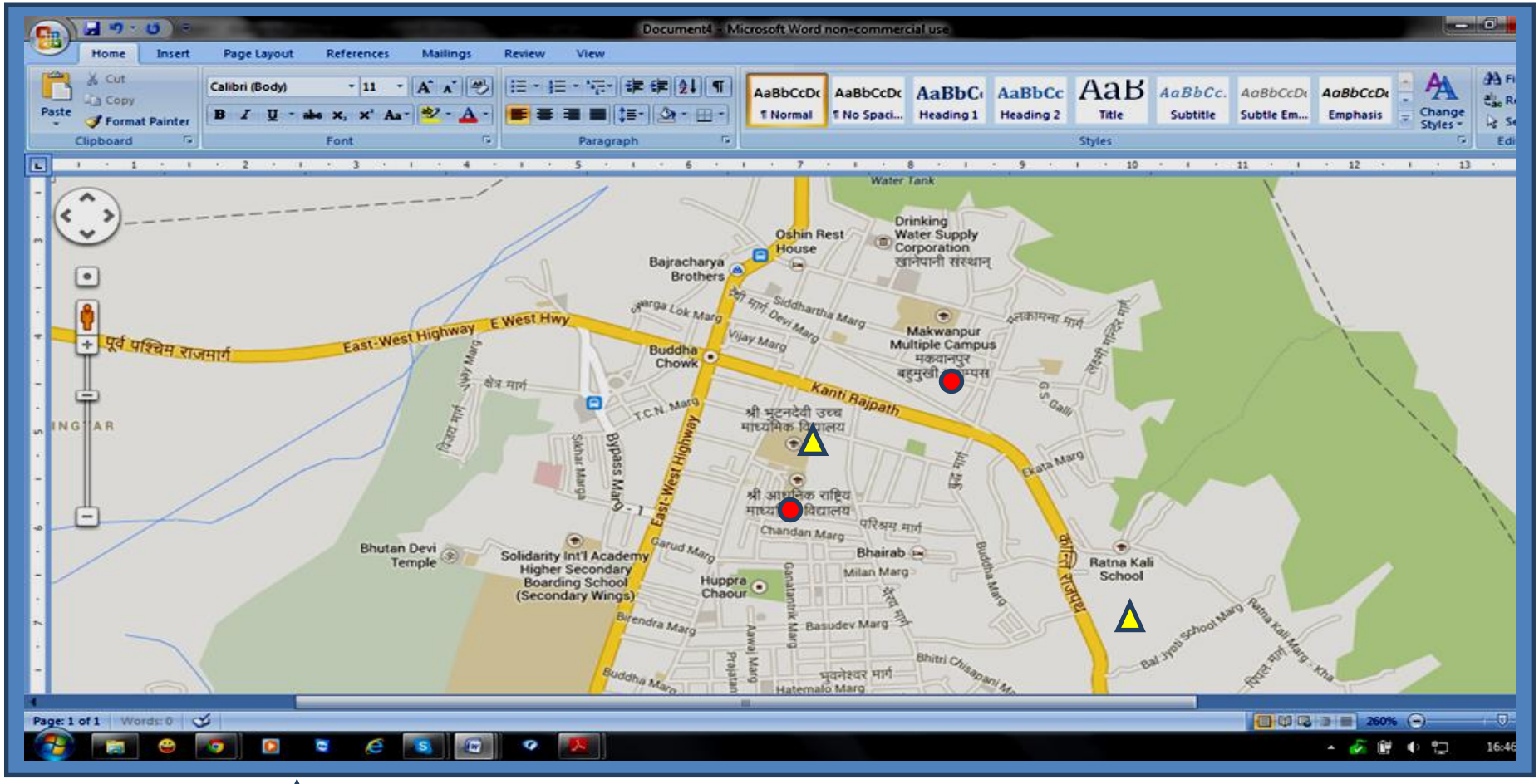
Community-based secondary schools were eligible to take part in this study if they were comprehensive, non-selective and mixed sex. Community-based schools are managed by the Nepalese government with the support of the local community (MoE/DoE Nepal, 2008). Schools that had already implemented sex education intervention programmes were not eligible. In each school, all pupils from Grade nine were eligible for the research unless their parents withheld them from participating in the study. The potential schools were identified from Makwanpur's District Education Office (DEO) and school flash report (DoE Nepal, 2008).

Initially, six secondary schools were identified as potential schools to take part in the study. They were each informed about the research and were asked to indicate if they were interested or not in taking part. All six schools responded positively stating that they wished to take part in the study. The main researcher visited these schools to assess the following potential obstacles; already involved in sex education research, a strong preference for being either a control or experiment school, any recent staff changes, making the study less feasible, or too far for the main researcher to access. Based on the information, two schools were excluded; one school was too distant and another school wanted to be a control school. The reason to be a control school was that the health teacher was newly appointed and the school head teacher wanted the health teacher to teach sex education.

3.7.3 Settings and locations of the data collection

This study was done in government supported community-based secondary schools in Hetauda municipality in Makwanpur district in central Nepal (please see Figure 3.4). Makwanpur district is identified as an area highly affected by female sex trafficking (SATHI/LWF, 2006) and is known for being a high risk zone for HIV, STIs, intravenous drug use (Jha and Madison, 2012), truckers and female sex workers (New Era Nepal, 2009). Hetauda offers access to both transportation and communication, sufficient to support the research activities. Geographically, it is the meeting point of the *terai* (plain) and the hill area. As such, this provided a mixed socio-background characteristic of respondents for the study.

Figure 3.4: Aerial view of Hetauda municipality and participating schools



● = control schools; △= experiment schools (Google map, 2013)

3.7.4 Sampling frame and sample size

Data collection is often a difficult and expensive process (Bowling, 2006). Obtaining sufficient data to provide robust statistical analyses in order to test the hypotheses may often conflict with logistical and ethical considerations concerning data acquisition (*ibid.,* 2006). In such cases, sample sizes need to be calculated to provide adequate tests of important experimental effects but they should not be unnecessarily large (Crombie, 1996).

In Nepal, the Ministry of Education (MoE) publishes a Flash Report every two years, which provides details about the schools, including class size at secondary level (DoE Nepal, 2008). This Flash Report was used to calculate the number of schools to be enrolled in this study (*ibid.,* 2008). The report described that there were nine community-based secondary schools in Hetauda municipality in Makwanpur. The average number of pupils per Year 9 class per school was 62, including males and females which was considered as a sampling frame.

One of the main outcomes of this study was to assess the knowledge gained about preventive measures against HIV/AIDS, STIs and teenage pregnancy. This knowledge was based on that abstinence means to avoid sex (A), be faithful to your sex partner (B), and correct and consistent condom use for safer sex (C). A previous study conducted in Nepal showed that 40% of Nepalese school students had knowledge of the ABC preventive measures (Gautam, 2004). However, the pilot study data showed a slightly different picture; 45.7% of pupils knew that abstinence means to avoid sex (A), 61.9% knew about being faithful to a sex partner (B) and 52.8% responded that they knew condoms should be used correctly and consistently

for safer sex purposes (C). These two pieces of evidence suggested that an average of 45% of pupils know about ABC; this percentage was considered as the pre-test knowledge of ABC for the purpose of calculating the sample size.

This study aimed to increase the ABC knowledge from 45% to 65% to observe the significance differences from the intervention (Stephenson *et al.,* 2004). So, for the two-sided test of 5% significance and 80% power, the sample size per group (control versus experiment) required was:

$$N = K \times \frac{p_1(1-p_1) + p_2(1-p_2)}{(p_1-p_2)^2}$$

Where K=7.9 for 80% power, p_1 and p_2 are the proportions estimates (Chan, 2003; Fox, Hunn and Mathers, 2007). Thus, from the above details, p_1= 0.45 (for 45% knowledge on ABC) and p_2=0.65 (for expected 65% knowledge on ABC) the number of participants required is:

$$N=7.9 \times [0.45(1-0.45) +0.65(1-0.65)]/ (0.45-0.65)^2 = 94$$

Hence, for the 2 sided test 94x2=188 participants are needed. Additionally, there was a chance that some participants would not complete the questionnaire, known as a response bias (Chan, 2003). So, the sample size was increased by 1/4 to overcome this problem. This provided a minimum total of 188+47=235 participants to be reached. The sampling frame (please see Section 3.7.4, 2nd paragraph) indicated that the average number of pupils per Year 9 class in the secondary schools in Hetauda

municipality was 62. This means the study required 235/62= 3.79 schools (4 schools) to conduct the study. By tossing a coin, these four schools were randomly assigned into either control (teacher-led) or experimental (health facilitator-led) groups. This process led to the identification of two control and two experimental schools.

3.7.5 Health facilitator selection and mobilisation

For the purpose of delivering sex education programmes in the experimental schools, two female staff nurses were selected to act as health facilitators. They were from the Family Planning Association of Nepal (FPAN) and Primary Health Centre (PHC) in Hetauda, Makwanpur. They received one day orientation training, delivered by sexual health education experts from DEO Makwanpur in May 2011. The orientation training comprised one pre-training meeting and one follow-up meeting. The follow-up meeting was aimed to review and update the development of the lesson plan. In the pre-training meeting, health facilitators made a work-plan and they evaluated the needs assessment exercise for the intervention of the sex education programme.

In the orientation training, they were provided with information about the sexual health issues of young people and were presented with the opportunity to develop participatory learning activities such as role-play, games, quizzes, discussions, and so on (Stephenson, Oakley, Johnson, Forrest, Strange, Charleston, Black, Copas, Petruckevitch and Babiker, 2003). The training also addressed the techniques of classroom management and group facilitation. This included communication clarity, rapport-building and skills delivery. Health facilitators also listed the information about local sexual health services.

The orientation training emphasised the adoption of more informal ways of teaching sex education. The aim of the orientation training was to develop classroom strategies in the experimental school through which pupils' communication and confidence in relation to sexual health knowledge and understanding could be enhanced. The orientation training meetings were observed by the main researcher. The intervention was started a week after the completion of the orientation training programme.

3.7.6 Randomisation and blinding

Being a group randomised design, four schools were randomised into two groups, experimental and control groups. In this type of design, two groups should be similar in terms of important variables such as age, sex and the sexual health knowledge and understanding level (Crombie, 1996). Educational intervention programmes are especially prone to contamination because the participants can share the important information with others and it is difficult to confine (Bryman, 2008). Contamination reduces the magnitude of effect estimates, causes bias and reduce power (*ibid.*, 2008). The group randomisation minimises the likelihood of contamination between control and experiment respondents (Szapocznik, Pequegnat and Prado, 2011).

The method used to assign interventions to study participants is a fundamental aspect of trial design (Bryman, 2008). Random assignment, which is a method of sequence generation, is the preferred method successfully used regularly in RCTs (Moher, Hopewell, Schulz, Montori, Gøtzsche, Devereaux and Altman, 2012). In this study, randomisation was performed to produce study groups that were comparable on

known and unknown unrelated influences. Importantly, all participants had an equal chance of being in any condition such as control school or experiment school.

Blinding prevents the researcher knowing certain information about the participants (Bang, Ni and Davis, 2004). Fundamentally, both the participant and the researcher are kept blind to the participant's random assignment, which is not always possible. Boutron, Estellat, Guittet, Dechartres, Sackett, Hróbjartsson and Ravaud (2006) have highlighted three main kinds of blinding used in RCTs. These are double blinding, partial blinding and no blinding. In double blinding, participants and the researcher are both unknowing about the treatment assignment. This reduces the influence of expectations held by participants, or by research staff, about which treatment will have a better effect on the outcome. Partial blinding is performed where double-blinding is not possible (*ibid.,* 2006). It is usually obvious to the study participants which treatment they are receiving. In addition, the research team do know the treatment assignment. However, the research person is kept blind to the participants' treatment condition. Unblinded trials are conducted especially in educational and behavioural research, where neither participant nor researcher can be blinded (Bowling, 2006; Bryman, 2008).

This study is unblinded in nature, since the participants and the main researcher together have common and positive expectations about the quality of the intervention in the control and experimental schools (Boutron *et. al.,* 2006). Nevertheless, the participants were not aware whether they would be assigned to a control or experiment school prior to the random assignment.

3.7.7 Conducting the intervention

The 'International Guidelines on Sexuality Education' emphasised that school sex education should comprise at least 12 classroom sessions, each lasting around 45 minutes (UNESCO Nepal, 2009). In this study each health facilitator and teacher delivered 16 classroom sessions to Grade 9 pupils for 6 weeks (3 lessons for 5 weeks and 1 lesson for week 6), each session lasted for 45 minutes (for health facilitator lesson plan please see Appendix 2, p. iii). The sessions were focused in a logical sequence in order to match the objectives of the intervention. The sessions were scheduled with Health, Population and Environment (HPE) subjects in accordance with the usual school practice for the provision of sex education.

Regular sex education teachers did not attend the classroom during the intervention session in the experimental schools. Health facilitators employed educationally sound methods that actively involved participants and assisted them in personalising information. They adopted a less formal approach than conventional teachers, and made more use of participatory classroom teaching techniques. These included games and small group work, discussions, brainstorms, role-play and demonstrating how to use condoms. In the experimental schools, pupils received a more participatory learning session compared to the control schools. During the intervention, all the participating pupils were informed that they would be contacted for a post-test after seven weeks. A verbal notice was given two weeks prior to that date (Landry, Smith, Swank, Zucker, Crawford and Solari, 2012). In the follow-up, pupils were asked to complete the post-test questionnaire, which was same as the pre-test questionnaire.

3.7.8 Conducting the Focus Group Discussions (FGDs)

FGDs require careful planning, as getting people to group gatherings can be difficult. Setting up suitable venues with adequate recording facilities also requires a lot of time. In this study, 8 Focus Group Discussions (FGDs) were conducted (4=control schools, 4=experiment schools) with 4 male and 4 female group reaching a total of 78 pupils from class nine. These pupils were from the same schools as those participated in the intervention but they were from different sections of Class nine. Some of them had already received sex education from the health teacher as per the usual delivery of sex education curricula. The main researcher had the intention of recruiting the same pupils who took part in the intervention. However, schools' preference not to engage the same students over and over again was the main reason that the main researcher changed the approach of participant selection. These FGDs were conducted during and after the period of the intervention programme. The FGD sessions lasted from one to one and half hours. School rooms were chosen to avoid either negative or positive associations with particular sites or buildings outside the school environment.

The aim of the FGD was to gain an insight into pupils' perception about sexual health and their evaluation of sex education. This also included how they communicated about sexual health issues with their parents, what the influences of media was on their sexual behaviour, what they thought about Sexual and Reproductive Health (SRH) services, and their views on wider issues about the school environment and culture in promoting sex education. The participants in the FGDs were purposively chosen and the school head teachers helped to select the participants. Two FGDs were organised per school, one for the male group and one

for the female group separately which helped to create a more favourable environment for the discussions. The number of pupils per FGD was between 9 and 11 with the age range 14 to 17 years.

Prior to the FGDs, pupils were informed about the study; it was made clear that it was voluntary and they were asked for oral consent (please see Appendix 8, p. xlviii), and for permission to record, and were told that they could leave the discussion if they wanted. The main researcher was cautious of the possibility that the participants might feel uncomfortable during the discussion. So, the participants were allowed to leave the discussion if they become reluctant to discuss the issue further. However, such a situation did not arise and all the participants remained until the end of the discussion.

3.7.9 Conducting the Key Informant Interviews (KIIs)

A total of 14 KIIs were carried out with pupils' parents (n=6) and school teachers (n=8) during the intervention period in Hetauda municipality. The condition for parental participation was that they should have at least one child in the secondary level irrespective of control or experiment school. The parents were purposely identified with the support from the participating schools. The school teachers were the head teachers and health teachers from those participating schools. The aim of the interview was to gather information about the content and delivery of sex education, identify the impact of culture and media in sex education and to understand how schools could develop partnerships with external agencies.

The main researcher was familiar with the interview settings and ensured the setting was quiet and private. Prior to the interview, the main researcher made a good relationship with the participants by introducing himself and sharing his experiences in providing sexual health education. They were asked to provide oral consent to the interview and permission for tape recording (please see Appendix 8, p. xlviii). Oral consent is mostly used in the social research where the participants feel uncomfortable with the form (Hennink, 2007). It also helps to save time and effort of the participants and researcher. They were told that they could stop the interview at any time if they felt uncomfortable talking. Participants' socio-background characteristics such as gender, age, ethnicity, education, occupation and deprivation level were obtained prior to the interview.

The interview was recorded using a digital audio-recording device, which allowed more systematic examination of what participants said and permitted the repeated examination of interviewees' answers. After the completion of the interviews, notes were made that focused on how the interviews went with the participants, where the interviews took place, whether they opened up new possible points of interest, and information about the settings.

3.7.10 Validity and generalisability

It is important for a researcher to establish trustworthiness when carrying out research activities. This ensures that the population of interest views the findings of the research as reliable addition to the available evidence. The population of interest is usually defined as the people whom the intervention selected to include in the study (Jaciw and Newman, 2011; Kim and Lee, 2011). In general, the research has a

common question - to what extent could the results of the study be extended to people, settings and interventionists different than those used in any particular study (Kim and Lee, 2011).

Validity refers to the accuracy of the results, which could be attributable to the effect of something else in the given study. According to Robson (2002) the validity also explores reliability, which is the consistency or stability to measure something. Reliability alone does not ensure validity, though a measure needs to be reliable to be valid (*ibid.*, 2002). Campbell and Stanley (1963) have discussed that the validity is concerned with measuring what it should measure and identifying causal relationship between intervention and outcome. Robson (2002) has described the generalisability as external validity.

There are mainly two kinds of validity - internal and external - and these are usually inversely related (*ibid.*, 2002). This means if the intervention is stricter to improve internal validity, it becomes more difficult to generalise the findings (external validity). Robson (2002) has described a number of threats to internal validity as shown in Table 3.4.

Table 3.4: Threats to internal validity

- *History*- other things that may have changed in a participant‘s environment, that are not part of the research.
- *Testing*- when using pre and post-tests, changes may occur as a result of practice and experience.
- *Instrumentation*- changes in some part of the measures between pre and post-tests.

- *Regression*- participants chosen because of a typical score may show a regression to the mean at post-test.
- *Mortality*- participants dropping out of the research study.
- *Maturation*- changes, development and growth unrelated to the treatment.
- *Selection*- differences between the groups before the onset of the research.

(Robson, 2002: 105)

According to Fisher (1935) one of the most important factors to offset these threats is the randomisation of the groups of the respondents. This study carefully developed the research design and schools were randomised to address the issues of internal validity. The sample population included a variety of participants, which represents an average Nepalese people. The study was conducted in a semi-urban area in central Nepal, which reflects the average socio-background characteristics of Nepalese society. Such a mixed and average representative sample has enabled the findings to be generalised to a diverse population. LeCompte and Goetz (1982) have suggested that repeated experiments with different target groups, in this study pre- and post-test, could help to promote the generalisability of the findings.

The main researcher conducted the study with the intention of obtaining results that are relevant to a broad range of settings and populations, particularly in developing countries. It could also allow other researchers to investigate whether the exposure (health facilitators-led session) appears more or less effective with some population subgroups (Sirriyeh, Lawton, Gardner and Armitage, 2012).

3.8 Quantitative data analysis

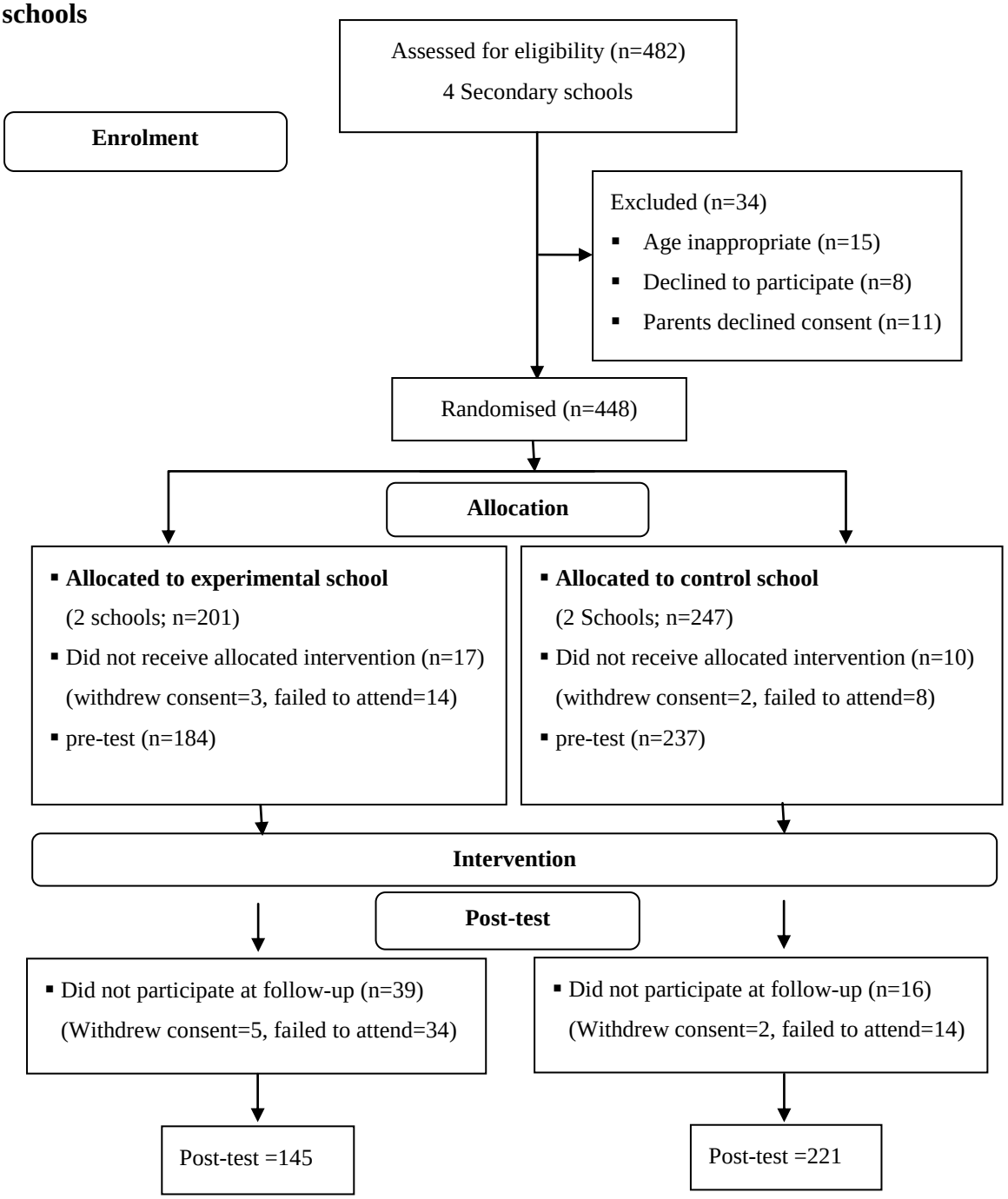
Quantitative data analysis deals with the collection and analysis of structured data and provides accurate results with a variety of choices for interpretation (Bryman, 2008). Quantitative data analysis is used to answer what, when and who questions and it is helpful to enhance the generalisation of the results (*ibid.,* 2008). In this study, a self-completed questionnaire was analysed quantitatively to answer the research questions and research hypotheses.

Data from the questionnaires were scored by assigning numeric values to each response. The data coding and computing were completed with SPSS (19.0) software. The data was cleaned up and proceeded from provisional analysis to descriptive analysis and inferential analysis (Creswell and Clark, 2007). The provisional analysis consisted of the Kolmogorov-Smirnov (K-S) and Shapiro-Wilk test and descriptive analysis consisted of a frequency table for age, gender, ethnicity and type of school (control/experiment). Some other statistical tests considered were inferential analysis; Chi-square and Mann-Whitney ($p<0.05$) tests. The results were presented in the forms of tables and figures to provide the trends and distribution of the data. Similarly, percentages were given to present the frequency of the data.

3.8.1 Participant flow and the data analysis undertaken

A total of 482 pupils were approached from four secondary schools (please see Figure 3.5). Out of this total, 34 pupils were excluded from further consideration.

Figure 3.5: Flow diagram of progress through randomised trial of two groups of schools



This was due to the following factors; inappropriate age (n=15), pupils declining to participate (n=8), and parents declining to give their consent (n=11). Therefore, 448 pupils were randomised from 4 schools, of which 201 pupils were in the experimental schools (health facilitator-led) and 247 pupils were in the control

schools (conventional teacher-led). In the experimental schools, 17 pupils did not receive the allocated exposure; consent withdrawal (n=3) and failure to attend the session (n=14). In the control schools, 10 pupils did not receive the allocated exposure; consent withdrawal (n=2) and failure to attend the session (n=8).

Therefore, a total of 421 pupils participated in the pre-test of which 184 were from experimental schools and 237 were from control schools. In the post-test, 39 pupils did not participate at the follow-up in the experimental schools and 16 pupils did not participate at the follow-up in the control schools. There were only 366 pupils participating in the post-test, of which 145 pupils were from experimental schools and 221 pupils were from control schools. The intervention questionnaire had the five-point Likert scale (1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree) which was converted into three-point Likert scale (1=disagree, 2=neither, 3=agree) for the convenient data analysis (Aalbers *et al.*, 2013).

Prior to the main analysis, a provisional analysis was made to determine the normality of the data by using the Kolmogorov-Smirnov (K-S) and Shapiro-Wilk test. The K-S test for normality could also confirm whether the data is parametric or non-parametric (Field, 2005). In-depth information about participants' socio-background characteristics in the control and experimental schools were analysed using Chi-square cross tabulation. The rationale behind running this analysis was to look at any differences in the particular sub-category of the background characteristics in the given study group (*ibid.*, 2005).

Five main socio-background characteristics - age, gender, ethnicity, fathers' education and mothers' education were analysed, controlling for each variable. The cross-tabulation analysis considered three tests - the Pearson Chi-square, Yates's continuity correction and Fisher's exact test. The Pearson Chi-square was used for the socio-background variables of two or more categories. Yates's continuity correction was used when there were two categories of data such as control/experiment versus pre-test/post-test (Field, 2005). Fisher's exact test was used when the expected count was <5 in any given cell.

3.8.2 Measuring the effectiveness of teaching sex education in school

In this study there were three outcome variables; Abstinence means to avoid sex (A), Be faithful to your sex partner (B), and Condom is used correctly and consistently for safer sex (C). These variables were non-parametric and were distributed in the ordinal scale ranging through disagree=1, neither=2 and agree=3. The data was not undertaken on paired samples; therefore Mann-Whitney (U) analysis was used to observe any differences between two time points at pre-test and post-test (Field, 2005) in the control and experimental schools. In the control schools there were 458 responses (pre-test =237, post-test =221) and in the experimental schools there were 329 responses (pre-test =184, post-test =145). The distribution patterns of the responses were used to examine the significance level at 95% Confidence Interval (CI).

An approximate effect size of these responses between pre-test and post-test in the control and experimental schools were calculated by *z*-score from the following equation:

$$r = \frac{Z}{\sqrt{N}}$$

Where

Z is the z-score that SPSS produces and N is the total number of responses in that study (*ibid.*, 2005). In this analysis if $r<0.3$, the effect was small to medium, however if $r>0.5$ the effect was large (ignoring the minus sign). In each control and experiment group of schools, a 25% increase in 3 outcome variables (ABC) was expected after the intervention. This was simply done by looking at the percentage of the responses in the particular question from control and experimental schools.

3.9 Qualitative data analysis

The qualitative data analysis explores a non-numeric concern, which aims to formulate theoretical understanding within an interpretive paradigm (Bowling, 2006). It is an approach, which sets out to understand the meaning behind the actions and words and the feasibility of study. Qualitative study is a natural enquiry method, which does not manipulate the research settings (*ibid.*, 2006). One of the major strengths of qualitative analysis is that it can enhance the findings through analysing underlying themes and meanings of descriptive data (*ibid.*, 2006). David and Sutton (2004) argued that it consumes more time as well as requiring maintenance of the confidentiality of those researched and other participants in the research. In this study, the aim of the qualitative data analysis is to analyse raw text data to transform it into coherent findings to understand participants' sexual health issues through their own perspectives. The main researcher's knowledge and experience about the local area (Hetauda municipality) was helpful in determining the meanings, associations and explanations derived from the data (Ritchie, Spencer and O'Connor, 2003).

3.9.1 Transcription and translation

In the analysis of FGD and KII data, the first step was the transcription of the individual recorded data. Transcriptions of the FGDs and KIIs were made based on the original recorded data. The transcription was not problematic, but careful steps were taken to check on the quality of the transcription. Each transcript had a covering note describing the setting, how the session was developed, any omissions or differences to other discussions or interviews, particular incidents, the ambience and the issues identified in the interview or discussion (Krueger and Casey, 2009). These transcriptions also included non-verbal behaviour and a comment on group interaction. The completed transcription was also compared with handwritten notes to fill in inaudible phrases or gaps in the tapes. In reality, transcript-based analysis represents the most rigorous mode of analysing qualitative data and it is useful for studies being conducted in academic settings and complex studies (Onwuegbuzie *et al.*, 2009).

Although transcribing interviews was extremely time consuming, there were significant advantages. First, it offered the opportunity to become familiar with the information supplied by FGDs (pupils) and KIIs (parents and teachers). It also helped to analyse the preliminary findings. Secondly, it enabled the recall of the incidents or less obvious themes that occurred during the discussions, which might be relevant, but are difficult to analyse from only the written transcripts. All FGDs and KIIs done with the participants were transcribed by the main researcher. Repeated listening to the recorders also increased the main researcher's familiarity with the data. All FGDs and KIIs were conducted in the Nepali language and transcriptions were translated into English by the main researcher.

The analysis of qualitative data is probably the most challenging aspect of the use of these methods (Sofaer, 2002). It is described that the quantity of qualitative data from even a small study can be overwhelming (Onwuegbuzie *et al.*, 2009). The transcription of FGD and KII generally took three to four hours per hour of recorded tape (Pope, Ziebland and Mays, 2006).

3.9.2 Thematic analysis

There are several approaches to qualitative analysis (Robinson, 1999; Forrest, van Teijlingen and Pitchforth, 2005; Pope *et al.*, 2006). For example, grounded theory is 'the discovery of theory from data', which ensures that the findings emerge from data rather than being imposed by researcher (Sandelowski, 2000). According to O'Grady (2013), an interpretive approach observes people and their interpretations, perceptions and understandings as a data source. Content analysis involves the examination of themes, which arise from answers in the questionnaires both in terms of what repetitive themes arise or the context discussed (Mason, 2002; Glaser and Strauss, 1967). Creswell and Clark (2007) have described that an *a priori* codes method uses a set of already existing codes in the qualitative data. Similarly, thematic analysis is a categorising strategy for qualitative data, which sort the data into categories (Bryman, 2008).

This study applied thematic analysis, which is considered to be the simplest and common form of inductive method to develop themes in the health education research (Cottrell and McKenzie, 2011). This analysis helped the main researcher to

move from a broad reading of qualitative data (FGDs and KIIs) towards finding patterns and developing themes (please see Table 3.5).

Table 3.5: Steps in thematic analysis

- Take the first few transcripts.
- Read them quickly.
- Read them again, code paragraph by paragraph.
- Use filing cards, highlighter pens, pencils, etc. to highlight themes.
- Use different codes/colours/etc. for different themes.
- When these transcripts are completed, sort your filing cards into themes.
- Sort cards again into related themes or categories.
- Continue on new set of transcripts.
- When you come across a new theme, remember to go back to the initial transcript to find evidence of this theme, or lack of it.
- When next set of transcripts is coded, sort all cards again into themes.
- Repeat these steps until no new themes or categories arise.
- Not deviant cases (the exception can give you as much insight as the rule.

(Forrest *et al.*, 2005: 41)

In thematic analysis, each transcript was read carefully and frequently. The main researcher looked for particular themes or responses, which were made repeatedly by the participants (Bender and Ewbank 1994). All the themes were identified by reading transcripts and further categories were refined within each main theme. All the themes were categorically looked at to develop main theme and highlighted by coloured pens. This process was repeated until no new themes developed.

3.10 Data triangulation

This study was influenced by the pragmatism worldview which is typically associated with quantitative and qualitative types of research (Creswell and Clark, 2007). The study represented different views of the nature of reality (ontology) and collected data by what works to address the research questions (epistemology). The main researcher included both biased and unbiased perspectives (axiology) and employed both formal and informal styles of information collection (rhetoric) to conduct and report the study.

This study used quantitative methods to identify the factors that influenced the sex education and sexual health outcomes of pupils. To supplement this data, the effectiveness of sex education and views surrounding sexual health was explored using qualitative discussions with pupils, parents and school teachers. In the general discussion section, both quantitative and qualitative results were discussed which is known as data triangulation (*ibid.,* 2007).

Using quantitative and qualitative (mixed) methods to explore the specific topic allows more investigation from a number of perspectives (Tashakkori and Teddlie, 2003). It is a dynamic option that could produce resourceful findings which expand, improve and advance the analytic power of individual studies (*ibid*, 2003). Creswell and Clark (2007) have described six mixed method designs that a researcher could apply in their studies as shown in Table 3.6.

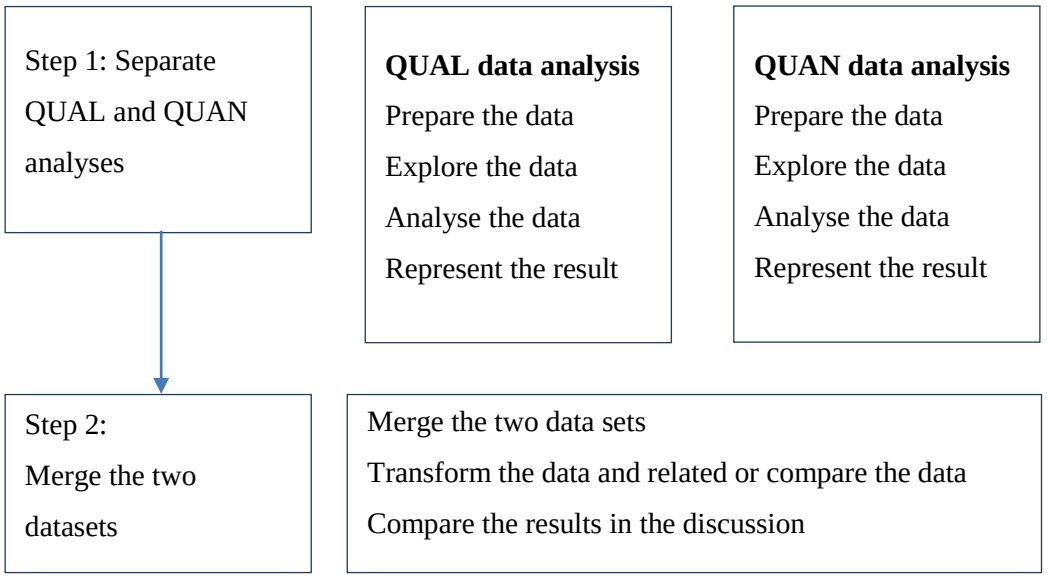
Table 3.6: Types of mixed method design

Design	Characterised by	Purpose
Sequential Explanatory	Collection and analysis of quantitative data followed by a collection and analysis of qualitative data.	To use qualitative results to assist in explaining and interpreting the findings of a quantitative study.
Sequential Exploratory	An initial phase of qualitative data collection and analysis followed by a phase of quantitative data collection and analysis.	To explore a phenomenon. This strategy may also be useful when developing and testing a new instrument.
Sequential Transformative	Collection and analysis of either quantitative or qualitative data first. The results are integrated in the interpretation phase.	To employ the methods that best serves a theoretical perspective.
Concurrent Triangulation	Two or more methods used to confirm, cross-validate, or corroborate findings within a study. Data collection is concurrent.	Generally, both methods are used to overcome a weakness in using one method with the strengths of another.
Concurrent Nested	A nested approach that gives priority to one of the methods and guides the project, while another is embedded or "nested."	The purpose of the nested method is to address a different question than the dominant or to seek information from different levels.
Concurrent Transformative	The use of a theoretical perspective reflected in the purpose or research questions of the study to guide all methodological choices.	To evaluate a theoretical perspective at different levels of analysis.

(Creswell and Clark, 2007: 85)

In this study, the purpose of the data triangulation is to explore to what extent the qualitative themes support the quantitative results. Creswell and Clark (2007) have more clearly explained the concurrent form of data analysis for triangulation design as shown in Figure 3.6.

Figure 3.6: Concurrent data analysis procedures in triangulation



(Creswell and Clark, 2007: 137)

The basic process of data analysis involves a separate analysis of the quantitative and qualitative information (step-1). The qualitative analysis includes coding, content analysis and theme development whereas quantitative analysis includes descriptive and inferential analysis. In step-2, the quantitative and qualitative data are merged to develop a complete picture of the data matrix.

There are many ways that two sets of data can be merged together, including using qualitative software (such as Nvivo) (*ibid.,* 2007). However, there is an alternative way of triangulating the quantitative and qualitative data by examining the differences and similarities in the discussion section of the study (*ibid.,* 2007). This study has highlighted the findings of the study in the discussion chapter by reporting quantitative results followed by information from qualitative results. The other reason for combining both sets of data in the discussion is for utility, completeness and to address current sexual health issues (Creswell and Clark, 2007). The main researcher has not attempted to directly merge or integrate the results; instead, the discussion highlights a comparison of the results from the two datasets.

CHAPTER-4: RESULTS

4.1 Introduction

This chapter describes an assessment of participants' sexual health knowledge and sexual health issues based on the results of an intervention programme, FGDs and KIIs. Since this study employed mixed methods, the quantitative and qualitative findings are reported together to provide a detailed picture of each topic. Section 4.2 presents provisional analysis of quantitative data. Section 4.3 presents socio-background characteristics of the intervention participants. Section 4.4 presents characteristics of FGDs participants. Section 4.5 presents characteristics of KII participants. Section 4.6 presents participants' response in the intervention. Section 4.7 presents effectiveness of sex education intervention programme. Section 4.8 presents participants' knowledge about preventive measures. Section 4.9 presents themes from the FGDs. Section 4.10 presents themes from the KIIs. Lastly, Section 4.11 presents a summary of the chapter.

4.2 Provisional analysis

The variables of the intervention data from the self-completion questionnaire were checked to determine normality before considering further testing. The exploratory analysis from the Kolmogorov-Smirnov (K-S) and Shapiro-Wilk tests showed that the distribution appeared not to be normal ($p<0.05$) for all schools (please see Appendix 10, p. liii). A deviation from normality confirmed that a non-parametric test was to be considered for the data analysis.

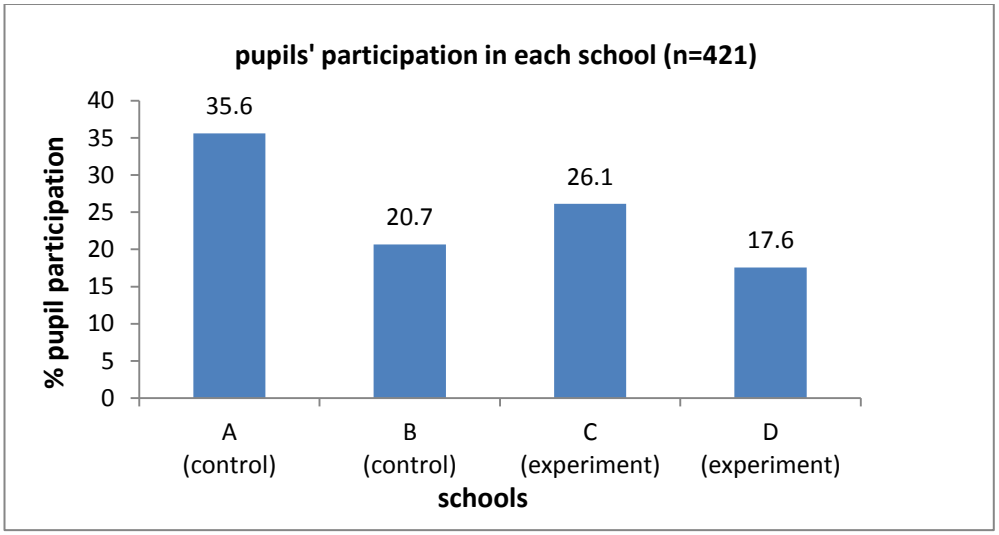
4.3 Socio-background characteristics of the intervention participants

The different samples of the 4 intervention schools are shown in Figure 4.1. Pupils' gender (please see Figure 4.2), age (please see Figure 4.3) and ethnicity (please see Figure 4.4) are also presented accordingly. A summary table of the socio-background characteristics is presented in Table 4.1.

4.3.1 Participants from the four intervention schools

In this study, a total of 421 pupils participated in the pre-test. There were more pupils from control school A (35.6%, n=150), followed by experimental school C (26.1%, n=110), control school B (20.7%, n=87) and experimental school D (17.6%, n=74) as shown in Figure 4.1.

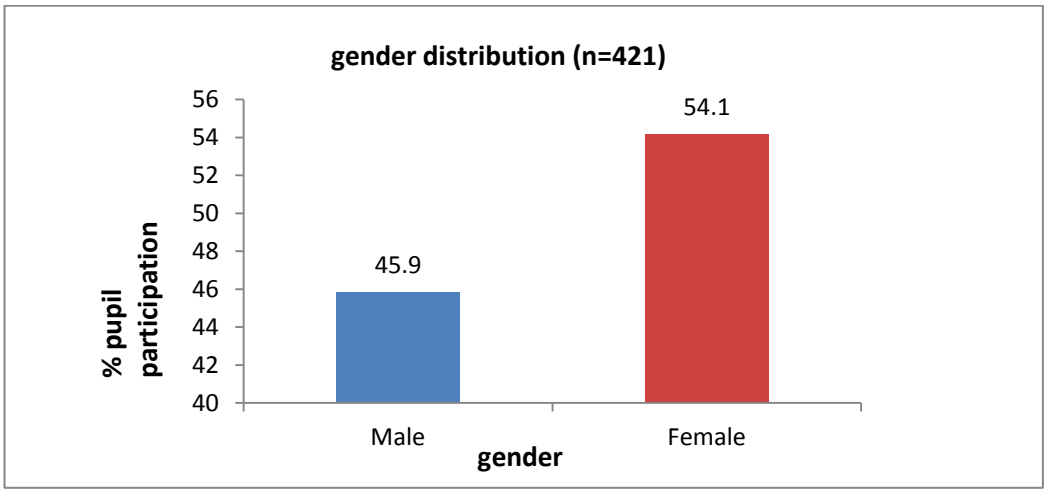
Figure 4.1: Samples of 4 intervention schools



4.3.2 Gender distribution

It is clear to see that there were more female participants in the study (54.1%, n=228) than males (45.9%, n=193) as shown in Figure 4.2.

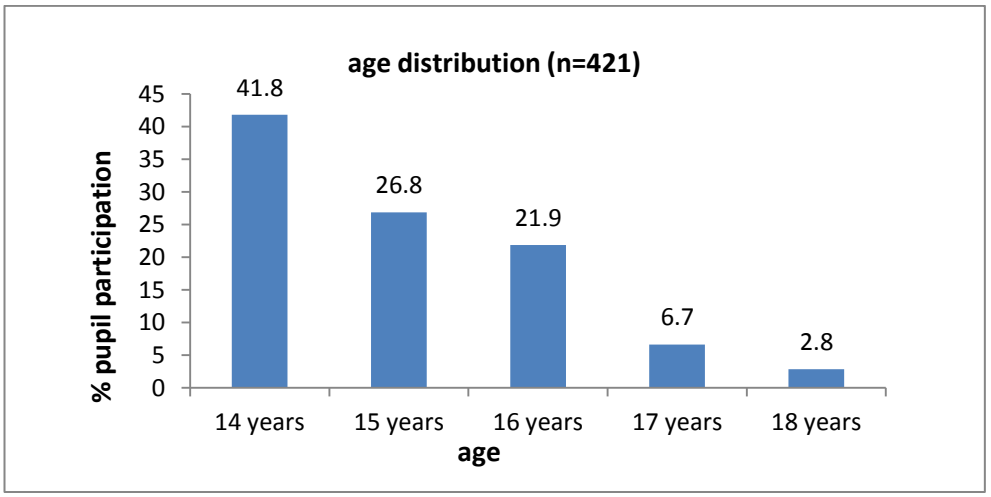
Figure 4.2: Gender distribution



4.3.3 Age distribution

More than 40% of the pupils were 14 years old (41.8%, n=176), followed by 15 years old (26.8%, n=113), 16 years old (21.9%, n=92) and 17 years old (6.7%, n=28) as shown in Figure 4.3. Very few pupils were 18 years old (2.8%, n=12).

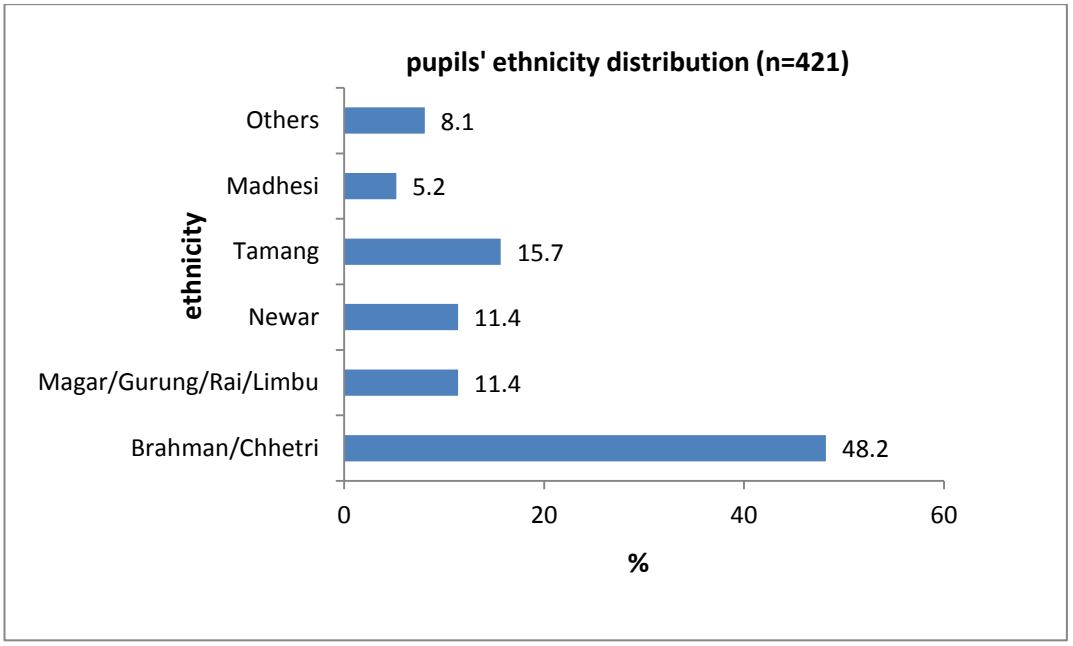
Figure 4.3: Age distribution



4.3.4 Ethnicity distribution

Nearly half of the respondents were from the Brahman/Chhetri caste category (48.2%, n=203) as shown in Figure 4.4. The second largest numbers of pupils were from the Tamang community (15.7%, n=66), which is supposed to be the dominant ethnic caste in Makwanpur district. The third largest number of respondents were from two other ethnic groups; Magar/Gurung/Rai/Limbu (11.4%, n=48) and Newar (11.4%, n=48). Very few pupils were from other caste categories (8.1%, n=34) and the Madhesi caste (5.2%, n=23).

Figure 4.4: Ethnicity distribution

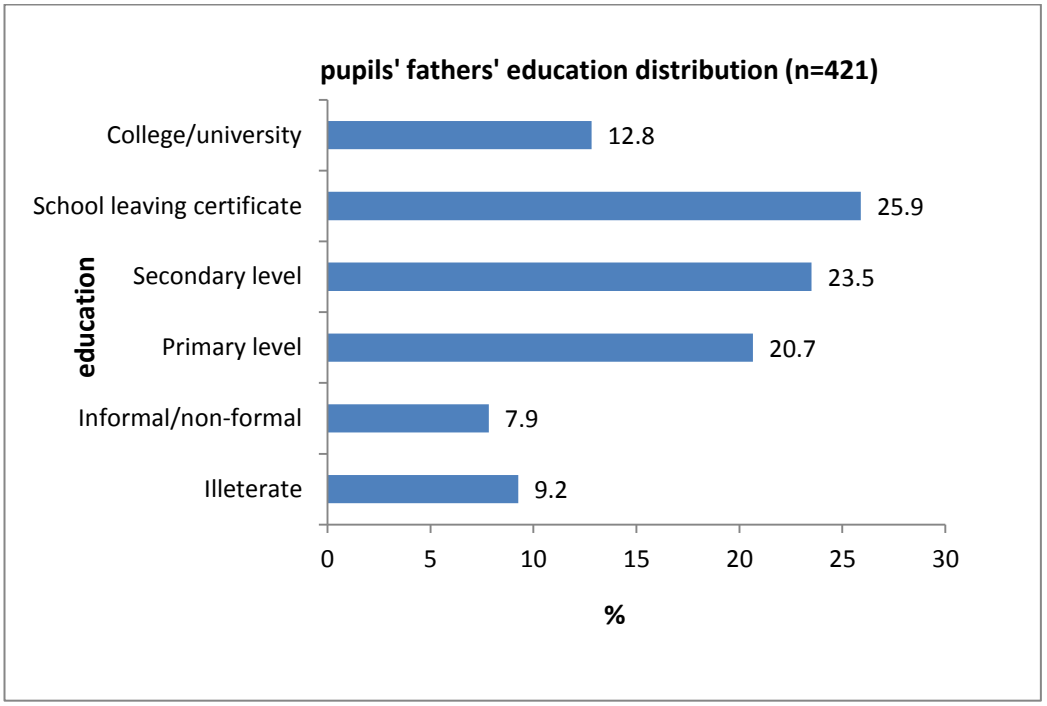


4.3.5 Pupils' fathers' education

More than a quarter of pupils' fathers had completed a school-leaving certificate (25.9%, n=109), followed by secondary education (23.5%, n=99), which was closely followed by primary education (20.7%, n=87) as shown in Figure 4.5. Pupils' fathers with college/university education was slightly higher (12.8%, n=54) than those with

no education such as illiterate (9.2%, n=39) and having informal/non-formal education (7.9%, n=33).

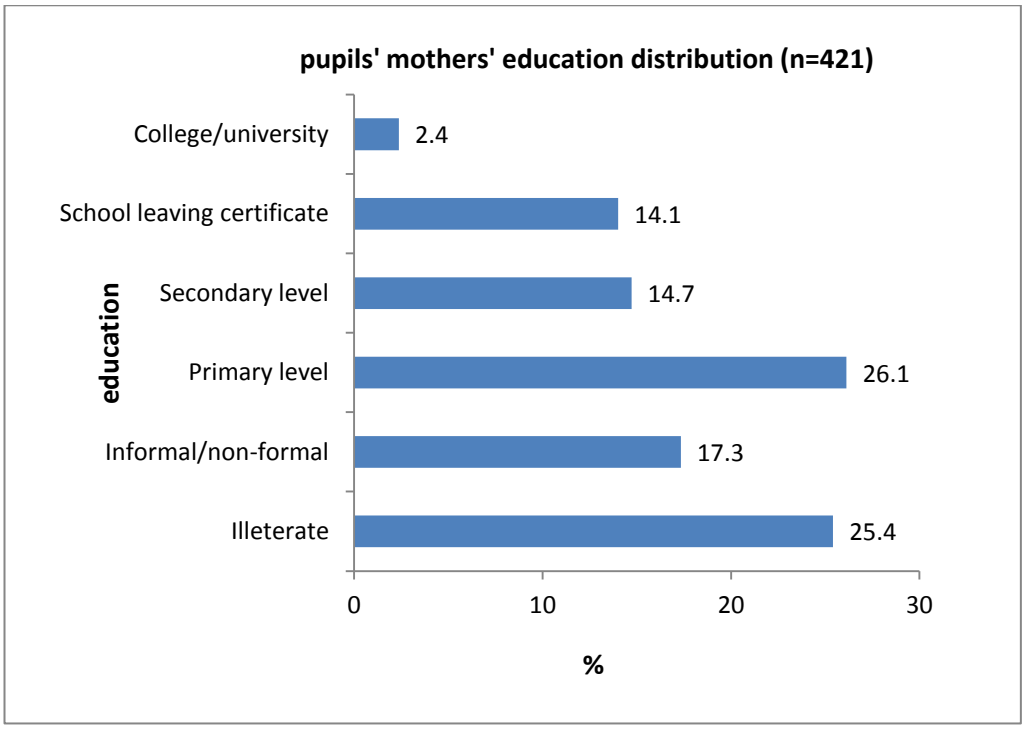
Figure 4.5: Pupils' fathers' education



4.3.6 Pupils' mothers' education

In contrast to the fathers' education, pupils' mothers' education was highest at the primary level (26.1%, n=110), closely followed by illiteracy (25.4%, n=107) as shown in Figure 4.6. Mothers' education was slightly higher in the informal/non-formal category (17.3%, n=73) compared to secondary level (14.7%, n=62) and school leaving certificate (14.1%, n=59). Very few pupils reported that their mothers had completed college/university education (2.4%, n=10).

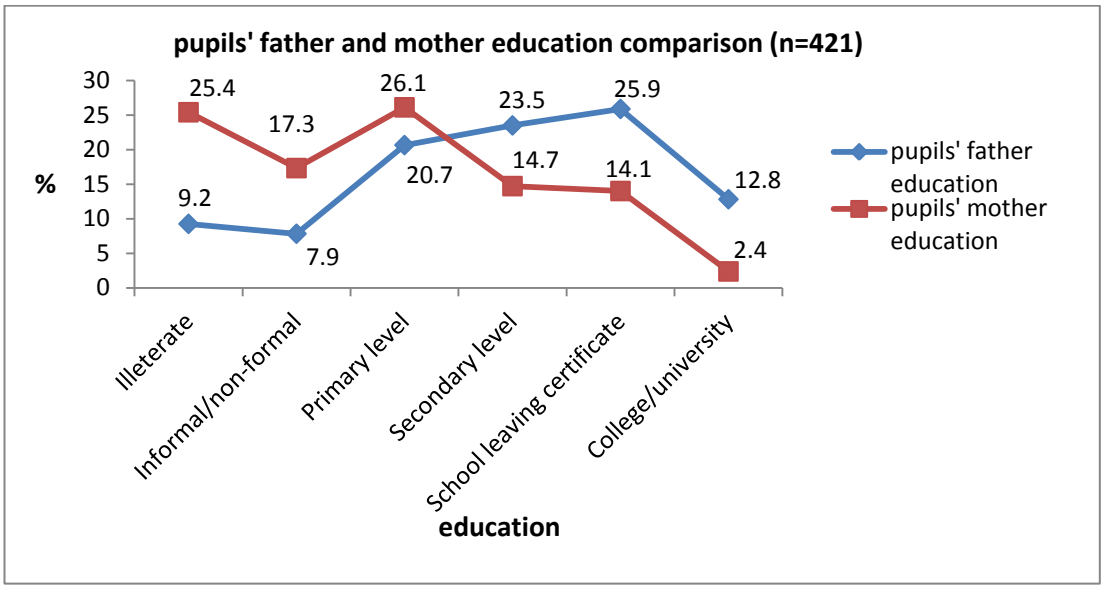
Figure 4.6: Pupils' mothers' education



4.3.7 Comparison of pupils' father and mother education

A large number of pupils' fathers had achieved college/university education (12.8%, n=54) compared to very low numbers of pupils' mothers having done so (2.4%, n=10). Fathers were more likely to attain higher schooling education than mothers: school leaving certificate 25.9% (n=109) and secondary education 23.5% (n=99). By contrast, a large number of pupils' mothers only achieved primary education (26.1%, n=110) closely followed by those who were illiterate (25.4%, n=107). Very few pupils' fathers had received informal/non-formal education (7.9%, n=33) as shown in Figure 4.7.

Figure 4.7: Comparison of pupils' father and mother education



4.3.8 Socio-background characteristics and response rate

Considering the pre-test participant figure of 421 as a 100%, there were only 366 pupils responding in the post-test, which was a drop of 55 respondents. This contributed to a 13.1% reduction rate in the post-test (86.9%). The details of the socio-background characteristics and pre-test/post-test response rates are given in Table 4.1.

Experiment school D had the highest response rate (98.6%), followed by control school B (94.2%), control school A (92.7%) and experiment school C (65.5%) respectively. The response rate was also higher in the control group (93.2%) than the experiment group (78.8%) and among males (90.7%) than females (83.8%). Similarly, 16 year old pupils had a high response rate (95.7%), followed by 18 year olds (91.7%), 15 year olds (87.6%), 14 year olds (82.9%) and 17 year olds (78.6%). By ethnicity Magar/Gurung/Rai/Limbu had a higher response rate (95.8%) closely followed by the 'Others' caste category as the second highest (91.1%).

Table 4.1: Socio-background characteristics and response rate

Particulars	pre-test/post-test		response
	pre-test (n=)	post-test (n=)	rate*
Schools			
Control school-A	150	139	92.7
Control school-B	87	82	94.2
Experiment school-C	110	72	65.5
Experiment school-D	74	73	98.6
Control/ Experiment			
Control	237	221	93.2
Experiment	184	145	78.8
Gender			
Male	193	175	90.7
Female	228	191	83.8
Age			
14 years	176	146	82.9
15 years	113	99	87.6
16 years	92	88	95.7
17 years	28	22	78.6
18 years	12	11	91.7
Ethnicity			
Brahman/Chhetri	203	175	86.2
Magar/Gurung/Rai/Limbu	48	46	95.8
Newar	48	39	81.2
Tamang	66	55	83.3
Madhesi	22	20	90.9
Others	34	31	91.1
Father's education			
Illiterate	39	35	89.7
Informal/non-formal	33	24	72.7
Primary education	87	82	94.2
Secondary education	99	81	81.8
School leaving certificate	109	99	90.8
College/university	54	45	83.3
Mother's education			
Illiterate	107	88	82.2
Informal/non-formal	73	52	71.2
Primary education	110	104	94.5
Secondary education	62	58	93.5
School leaving certificate	59	54	91.5
College/university	10	10	100
Total	421	366	86.9

*Pearson Chi-Square, p>0.05 sig. (2-sided); * Response rate= (post-test/pre-test x 100)*

Looking at pupils' fathers' education, response rate was high among pupils whose fathers had primary education (94.2%), followed by school leaving certificate (90.8%), illiterate (89.7%) and those with college/university education (83.3%). Interestingly, pupils whose mothers had attained college/university education had the highest response rate (100%), followed by primary education (94.5%), secondary education (93.5%) and school leaving certificate (91.5%). The non-significant result (Pearson Chi-square) indicated that there was no association between pre-test and post-test to pupils' socio-background characteristics, $p > 0.05$ (2-sided).

4.4 Characteristics of FGDs participants

The FGD participants in this study were a diverse group of different ages and ethnicities.

Table 4.2: Characteristics of FGDs participants (n=78)

Characteristics	Frequency
Age	% (n)
14 years	24.4%, n=19
15 years	29.5%, n=23
16 years	30.8%, n=24
17 years	15.4%, n=12
Gender	% (n)
Male	51.3%, n=40
Female	48.7%, n=38
Ethnicity	% (n)
Brahman/Chhetri	55.1%, n=43
Tamang	26.9%, n=21
Newar	10.3%, n=8
Rai	5.1%, n=4
Madhesi	2.6%, n=2

In total, there were 78 pupils from 8 FGDs held in four schools, comprising 38 females and 40 males. Two FGDs were organised per school, one for the male group and one for the female group. The number of pupils participating per FGD was between 9 and 11. The participants were from the age range 14 to 17 years (please see Table 4.2).

4.5 Characteristics of KIIs participants

A total of 14 participants were interviewed from Hetauda municipality to take part in the KIIs (please see Table 4.3). The participants consisted of eight school teachers from four secondary schools. Two teachers were interviewed from each school; they were the school health teacher and school head teacher. Apart from this, six parents were also interviewed from Hetauda municipality. The criterion for parents' participation was that they should have at least one child studying in secondary school, or at least one child who has already attended school at the secondary level in the last three years.

There were more male participants (78.6%, n=11) compared to few female participants (21.4%, n=3) in the KIIs. This is because Nepalese females' are reluctant to discuss about sex education matters with others. The highest age of participant was a school head teacher aged 62 and the lowest age was a school health teacher aged 30. Nearly half the participants were from the Brahman caste category (42.8%, n=6). The majority of the participants had completed university education (71.4%, n=10).

Table 4.3: Characteristics of KIIs participants (n=14)

Number	Age	Sex	Ethnicity	Education	Occupation
Key Informant Interviews (KIIs) with parents					
KII-1	57	M	Brahman	SLC*	Agriculture
KII-2	34	M	Brahman	University	Service
KII-3	35	F	Tamang	SLC*	Business
KII-4	55	M	Tamang	University	Business
KII-5	52	M	Brahman	Secondary	Agriculture
KII-6	48	F	Tamang	Secondary	Agriculture
Key Informant Interviews (KIIs) with school health teacher					
KII-7	42	M	Newar	University	-
KII-8	30	M	Brahman	University	-
KII-9	33	M	Newar	University	-
KII-10	40	F	Gurung	University	-
Key Informant Interviews (KIIs) with school head teacher					
KII-11	55	M	Newar	University	-
KII-12	59	M	Brahman	University	-
KII-13	48	M	Chhetri	University	-
KII-14	62	M	Brahman	University	-

**SLC=School Leaving Certificate*

4.6 Checking significance of the participants' responses in the intervention

The intervention data was further checked by cross tabulation (2x2 table) to identify whether there were any significant differences in pupils' responses between the pre-test and post-test in both the control and experimental schools.

4.6.1 Socio-background variables

Five main socio-background characteristics i.e. ethnicity (caste), gender, age, pupils' father education and pupils' mother education were analysed controlling for each variable.

Table 4.4: Socio-background characteristics by pre-test / post-test versus control/experiment

Socio-background variables	p-value (>0.05)
Ethnicity	
Brahman/Chhetri	0.568
Magar/Gurung/Rai/Limbu	1.00
Newar	0.896
Tamang	0.606
Madhesi	0.608
Others	0.829
Gender	
Male	0.730
Female	0.277
Age	
14 years	0.215
15 years	0.942
16 years	0.981
17 years	0.723
18 years	1.00
Father's education	
Illiterate	1.00
Informal/non-formal	0.888
Primary education	1.00
Secondary education	0.338
School leaving certificate	0.537
College/university	0.507
Mother's education	
Illiterate	0.951
Informal/non-formal	0.220
Primary education	1.00
Secondary education	0.759
School leaving certificate	0.759
College/university	1.00

A summary of the analysis is shown in Table 4.4 (please see Appendix 11, p. liv for detailed analysis). The analysis revealed no significant differences with regard to the socio-background characteristics of the pupils across pre-test and post-test in the control and experimental schools ($p>0.05$).

4.6.2 Main questionnaire variables and z-score

There are four main sections in the sexual health intervention questionnaire (18 questionnaire items), excluding six socio-background characteristics. These are sources of sexual health information, sexual health awareness level, sexual health knowledge and understanding, and sexual health norms and beliefs. In the original data, pupils had a choice from a five-point Likert scale (please see Appendix 12, p.lxvii for detailed analysis). However, the converted three-point Likert scale had three responses (disagree, neither, agree) in each questionnaire item.

Pupils' responses to these 18 sexual health questionnaire items on a three-point Likert scale were analysed using cross tabulation to observe any significant differences in the control and experimental schools (please see Appendix 13, p. lxxvi for detailed analysis). The z-score determines how many standard deviations the response is from the mean. This score was calculated for each questionnaire by gender in the control (please see Appendix 14, p. lxxxv for detailed analysis) and experimental school (please see Appendix 15, p. lxxxvi for detailed analysis). Summary tables of these analysis are presented below.

Sources of sexual health information: The cross tabulation and z-score analysis shows that there were significant differences between male and female responses in

four questionnaire variables in the control and experiment schools as shown in Table 4.5. Of those responses, *friends/peers* in control group ($z = -4.165$, $p<0.001$), *relatives of similar age* in control group ($z = -3.059$, $p<0.05$), *youth volunteer worker* in control group ($z = -2.982$, $p<0.05$), *chemist or pharmacy* in control group ($z = -4.324$, $p<0.001$) and *chemist or pharmacy* in experiment group ($z = -2.589$, $p<0.05$) were significantly different.

Table 4.5: Sources of sexual health information

friends/peers					
intervention	response			total (100%)	z-score
	disagree	neither	agree		
control	17.7%, n=81	9.6%, n=44	72.7%, n=333	458	-4.165**
experiment	19.8%, n=65	5.7%, n=19	74.5%, n=245	329	-.284
relatives of similar age					
intervention	response			total (100%)	
	disagree	neither	agree		
control	30.1%, n=138	14.2%, n=65	55.7%, n=255	458	-3.059*
experiment	26.1%, n=86	7.6%, n=25	66.3%, n=218	329	-.264
health professionals					
intervention	response			total (100%)	
	disagree	neither	agree		
control	10.3%, n=47	1.7%, n=8	88.0%, n=403	458	-.510
experiment	8.2%, n=27	1.2%, n=4	90.6%, n=298	329	-.111
health counsellors					
intervention	response			total (100%)	
	disagree	neither	agree		
control	13.8%, n=63	10.5%, n=48	75.7%, n=347	458	-.453
experiment	12.4%, n=41	4.0%, n=13	83.6%, n=275	329	-.746
sex partner					
intervention	response			total (100%)	
	disagree	neither	agree		
control	32.5%, n=149	11.4%, n=52	56.1%, n=257	458	-2.982*
experiment	22.8%, n=75	7.6%, n=25	69.6%, n=229	329	-1.063
kissing hugging to each other					
intervention	response			total (100%)	
	disagree	neither	agree		
control	58.3%, n=267	13.3%, n=61	28.4%, n=130	458	-4.324**
experiment	49.2%, n=162	11.9%, n=39	38.9%, n=128	329	-2.859*

*p<0.05; **p<0.001

Sexual health awareness level: The analysis of the cross tabulation and z-score shows that there are three main questionnaire variables that showed a significant difference between male and female in the control/experiment school as shown in Table 4.6. The *parental counselling is important for young people's sexual health development* question showed a significant difference in the control group ($z = -4.660$, $p<0.001$).

Similarly, *fertilisation is a natural process that takes place in a fallopian tube* in the experiment group ($z = -3.002$, $p<0.05$), *adolescent experience growth of height during physical change* in the control group ($z = -3.754$, $p<0.001$) and in the experiment group ($z = -2.878$, $p<0.05$) also showed a significant differences between male and female responses.

Table 4.6: Sexual health awareness level

parental counselling is important					
intervention	response			total (100%)	z-score
	disagree	neither	agree		
control	15.1%, n=69	6.5%, n=30	78.4%, n=359	458	-4.660**
experiment	7.9%, n=26	13.7%, n=45	78.4%, n=258	329	-.672
fertilisation is a natural process					
intervention	response			total (100%)	
	disagree	neither	agree		
control	17.7%, n=81	30.3%, n=139	52.0%, n=238	458	-.643
experiment	10.0%, n=33	27.1%, n=89	62.9%, n=207	329	-3.002*
adolescent experience growth of height					
intervention	response			total (100%)	
	disagree	neither	agree		
control	13.3%, n=61	4.8%, n=22	81.9%, n=375	458	-3.754**
experiment	6.7%, n=22	1.5%, n=5	91.8%, n=302	329	-2.878*
condom is used correctly and consistently					
intervention	response			total (100%)	
	disagree	neither	agree		
control	11.1%, n=51	4.2%, n=19	84.7%, n=388	458	-1.079
experiment	21.3%, n=70	10.3%, n=34	68.4%, n=225	329	-1.285

*p<0.05; **p<0.001

Sexual health knowledge and understanding: The cross tabulation and z-score analysis shows that there was only one questionnaire variable that showed a significant difference between the males and females in the control school, as shown in Table 4.7. The variable was *STIs may cause infertility* (z = -2.232, p=0.004).

Table 4.7: Sexual health knowledge and understanding

unsafe sexual behaviour is adolescents' problem					
intervention	response			total (100%)	z-score
	disagree	neither	agree		
control	6.8%, n=31	2.8%, n=13	90.4%, n=414	458	-.952
experiment	10.3%, n=34	6.7%, n=22	83.0%, n=273	329	-1.569
STIs (Sexually Transmitted Infections) may cause infertility					
intervention	response			total (100%)	
	disagree	neither	agree		
control	69.9%, n=320	11.1%, n=51	19.0%, n=87	458	-2.232*
experiment	60.2%, n=198	11.8%, n=39	28.0%, n=92	329	-.891
loneliness occurs as a result of emotional change					
intervention	response			total (100%)	
	disagree	neither	agree		
control	11.1%, n=51	7.2%, n=33	81.7%, n=374	458	-1.371
experiment	16.4%, n=54	5.8%, n=19	77.8%, n=256	329	-.346
it is better to have only one sex partner					
intervention	response			total (100%)	
	disagree	neither	agree		
control	4.8%, n=22	2.6%, n=12	92.6%, n=424	458	-.569
experiment	11.2%, n=37	3.1%, n=10	85.7%, n=282	329	-.175

Sexual health norms and beliefs: The cross tabulation and z-score analysis shows that this section had two questionnaire variables that showed significant differences in pupils' responses in the male and female group in the control/experiment school as shown in Table 4.8. These questions were *females should be considered untouchable during menstruation* in the control group (z = -1.965, p<0.05), *a girl loses her dignity if she has sex before marriage* in the control group (z = -2.635, p<0.05) and in the experiment group (z = -2.367, p<0.05).

Table 4.8: Sexual health norms and beliefs

abstinence means to avoid sex					
intervention	response			total (100%)	z-score
	disagree	neither	agree		
control	24.2%, n=111	13.4%, n=61	62.4%, n=286	458	-1.456
experiment	21.0%, n=69	17.6%, n=58	61.4%, n=202	329	-.850
females should be considered untouchable during menstruation					
intervention	response			total (100%)	
	disagree	neither	agree		
control	58.1%, n=266	7.0%, n=32	34.9%, n=160	458	-1.965*
experiment	64.1%, n=211	8.5%, n=28	27.4%, n=90	329	-.451
a girl loses her dignity if she has sex before marriage					
intervention	response			total (100%)	
	disagree	neither	agree		
control	23.1%, n=106	5.5.%, n=25	71.4%, n=327	458	-2.635*
experiment	30.1%, n=99	7.9%, n=26	62.0%, n=204	329	-2.367*
a girl can suggest a boy uses a condom if he suffers from an STI					
intervention	response			total (100%)	
	disagree	neither	agree		
control	9.2%, n=42	3.9%, n=18	86.9%, n=398	458	-.571
experiment	9.7%, n=32	4.6%, n=15	85.7%, n=282	329	-.656

4.7. Effectiveness of sex education intervention programme

The Mann-Whitney (U) analysis was done to observe any significant differences between the pre-test and post-test in the control and experiment schools and to obtain the effect size of pupils' responses.

4.7.1 Control schools

Pupils' responses to the pre-test/post-test questionnaires in the control schools were used to examine the significance level at 95% confidence interval (CI). The result concluded that pupils' scoring in the pre-test was significantly different to the post-test for five questionnaire variables as shown in Table 4.9. This illustrates that for all these variables, the intervention (teacher-led sex education) had a significant positive impact on pupils' sexual health knowledge and understanding.

The variables with pre-test/post-test mean score were: variable 6 (pre-test =217.28, post-test =242.60); variable 7 (pre-test =239.09, post-test =219.22); variable 8 (pre-test =217.41, post-test =242.47); variable 13 (pre-test =217.74, post-test =242.11); and variable 15 (pre-test =213.59, post-test =246.56). In the post-test, the mean rank scores increased significantly in all variables except for variable 7, which decreased from 239.09 in the pre-test to 219.22 in the post-test. This demonstrated that pupils were not confident about their parents offering sexual health information. The effect of delivering sex education in the control schools by a conventional school teacher, however, was small ($r<0.3$).

Table 4.9: Ranks (control group)

Variables	Pre-test / Post-test	Mean Rank	Sum of Ranks	Mann Whitney *(U)*	z-score	Asymp. Sig. (2-tailed)	Effect Size *(r)*
Sources of sexual health information							
1. Friends/peers	pre-test	226.31	53636.00	25433.00	-.684	0.494	0.031
	post-test	232.92	51475.00				
2. Relatives of similar age such as brothers/sisters/cousins	pre-test	238.60	56548.00	24032.00	-1.706	0.088	0.079
	post-test	219.74	48563.00				
3. Health professional such as doctor/nurse	pre-test	230.80	54700.50	25879.50	-.387	0.698	0.018
	post-test	228.10	50410.50				
4. Visitor from outside such as health facilitator	pre-test	224.43	53191.00	24988.00	-1.132	0.258	0.052
	post-test	234.93	51920.00				
5. Youth volunteer worker	pre-test	231.34	54828.00	25752.00	-.348	0.728	0.016
	post-test	227.52	50283.00				
6. Chemist or pharmacy	pre-test	217.28	51496.50	23293.50	-2.321	**0.020***	**0.108**^
	post-test	242.60	53614.50				
Sexual health awareness level							
7. Parental counselling is important for sexual health development	pre-test	239.09	56663.50	23916.50	-2.237	**0.025***	**0.104**^
	post-test	219.22	48447.50				
8. Fertilisation is a natural process that takes place in fallopian tube	pre-test	217.41	51525.00	23322.00	-2.228	**0.026***	**0.104**^
	post-test	242.47	53586.00				
9. Adolescent experience growth of height during physical change	pre-test	232.59	55125.00	25455.00	-.774	0.439	0.036
	post-test	226.18	49986.00				

10. Condom is used correctly and consistently for safer sex purpose	pre-test	234.34	55538.00	25042.00	-1.296	0.195	0.060
	post-test	224.31	49573.00				
Sexual health knowledge and understanding							
11. Unsafe sexual behaviour is adolescent's current problem	pre-test	233.18	55263.00	25317.00	-1.205	0.228	0.056
	post-test	225.56	49848.00				
12. STIs (Sexually Transmitted Infections) may cause infertility	pre-test	231.90	54961.00	25619.00	-.499	0.618	0.023
	post-test	226.92	50150.00				
13. Loneliness occurs as a result of emotional change	pre-test	217.74	51605.50	23402.50	-2.922	**0.003***	**0.136**^
	post-test	242.11	53505.50				
14. It is better to have only one sex partner for sexual relationship	pre-test	228.16	54074.50	25871.50	-.493	0.622	0.023
	post-test	230.93	51036.50				
Sexual health norms and beliefs							
15. I believe in abstinence which means to avoid sex	pre-test	213.59	50620.50	22417.50	-3.097	**0.002***	**0.144**^
	post-test	246.56	54490.50				
16. Females should be considered untouchable during menstruation	pre-test	233.90	55434.50	25145.50	-.845	0.398	0.039
	post-test	224.78	49676.50				
17. A girl loses her dignity if she has sex before marriage	pre-test	223.19	52895.50	24692.50	-1.339	0.181	0.062
	post-test	236.27	52215.50				
18. A girl can suggest a boy uses a condom if he suffers from an STI	pre-test	229.76	54453.50	26126.50	-.075	0.940	0.003
	post-test	229.22	50657.50				

*note:*p<0.05; **p<0.001; ^=small effect (r<0.3); ^^=medium effect (r>0.3); ^^^=large effect (r>0.5)*

4.7.2 Experimental schools

In the experimental schools, there were more questionnaire variables that showed significant differences between the pre-test and post-test scores as shown in Table 4.10. Under the *sources of sexual health information* section, pupils' responses to four variables were significantly different between the pre-test and post-test. These were variable 1 (pre-test =147.33, post-test =187.43), variable 3 (pre-test =156.40, post-test =175.91), variable 4 (pre-test =151.79, post-test 181.76), and variable 6 (pre-test =151.61, post-test =181.99). This demonstrated that for all these four variables, the intervention (health facilitator-led sex education) had a significant positive impact on pupils' knowledge about sources of sexual health information. The effect of the intervention, however, was small for all these variables *(r<0.3).*

In the second section *sexual health awareness level*, the responses to the following variables were found to be significantly different between the pre-test and post-test. These were variable 7 (pre-test =156.44, post-test =175.87), variable 8 (pre-test =153.08, post-test =180.12), and variable 10 (pre-test =142.20, post-test =193.93). These results suggested that the health facilitator-led sex education had a significant positive impact on pupils' sexual health awareness level. Nevertheless, the effect of the intervention was small *(r<0.3)* in the case of the first 2 variables (variable 7 and 8) and was of moderate *(r>0.3)* in the case of the later variable (variable 10).

Pupils' responses to the third section *sexual health knowledge and understanding* showed that the following variables had significant differences in the pre-test and post-test. These were variable 11 (pre-test =153.62, post-test =179.44), variable 13 (pre-test =150.77, post-test =183.06), and variable 14 (pre-test =154.26, post-test

=178.63). This demonstrated that the health facilitator-led sex education had a significant positive impact on pupils' sexual health knowledge and understanding. However, the effect of the intervention was small *(r<0.3).*

The fourth section *sexual health norms and beliefs* also showed three variables that had significantly different scores between the pre-test and post-test. These were variable 15 (pre-test =147.97, post-test =186.61), variable 16 (pre-test =173.31, post-test =154.46), and variable 18 (pre-test =153.45, post-test =179.66). This clearly indicated that the health facilitator-led sex education had a significant positive impact on pupils' sexual health norms and beliefs. Nevertheless, the effect of the intervention was small *(r<0.3).*

Compared to the pre-test, the mean rank score of all questionnaire variables was increased in the post-test, except for *females should be considered untouchable during menstruation*. This decreased from 173.31 in the pre-test to 154.46 in the post-test. The possible explanation for this outcome is the health facilitator-led sex education intervention to change pupils' perception about conventional belief that prevents Nepalese women from doing certain household jobs.

Table 4.10: Ranks (experiment group)

Variables	Pre-test / Post-test	Mean Rank	Sum of Ranks	Mann Whitney *(U)*	z-score	Asymp. Sig. (2-tailed)	Effect Size *(r)*
Source of sexual health information							
1. Friends/peers	pre-test	147.33	27108.00	10088.00	-4.989	**0.000****	-0.275^
	post-test	187.43	27177.00				
2. Relatives of similar age such as brothers/sisters/cousins	pre-test	159.37	29323.50	12303.50	-1.456	0.145	-0.080
	post-test	172.15	24961.50				
3. Health professional such as doctor/nurse	pre-test	156.40	28778.50	11758.50	-3.647	**0.000****	-0.201^
	post-test	175.91	25506.50				
4. Visitor from outside such as health facilitator	pre-test	151.79	27930.00	10910.00	-4.409	**0.000****	-0.243^
	post-test	181.76	26355.00				
5. Youth volunteer worker	pre-test	160.67	29563.00	12543.00	-1.154	0.249	-0.063
	post-test	170.50	24722.00				
6. Chemist or pharmacy	pre-test	151.61	27896.00	10876.00	-3.177	**0.001***	-0.175^
	post-test	181.99	26389.00				
Sexual health awareness level							
7. Parental counselling is important for sexual health development	pre-test	156.44	28784.50	11764.50	-2.564	**0.010***	-0.141^
	post-test	175.87	25500.50				
8. Fertilisation is a natural process that takes place in fallopian tube	pre-test	153.08	28167.00	11147.00	-2.996	**0.003***	-0.165^
	post-test	180.12	26118.00				
9. Adolescent experience growth of height during physical change	pre-test	161.48	29711.50	12691.50	-1.592	0.111	-0.087
	post-test	169.47	24573.50				

10. Condom is used correctly and consistently for safer sex purpose	pre-test	142.20	26164.50	9144.50	-5.987	**0.000****	-0.330^^
	post-test	193.93	28120.50				
Sexual health knowledge and understanding							
11. Unsafe sexual behaviour is adolescent's current problem	pre-test	153.62	28266.00	11246.00	-3.740	**0.000****	-0.206^
	post-test	179.44	26019.00				
12. STIs (Sexually Transmitted Infections) may cause infertility	pre-test	172.02	31652.50	12047.50	-1.733	0.083	-0.095
	post-test	156.09	22632.50				
13. Loneliness occurs as a result of emotional change	pre-test	150.77	27742.00	10722.00	-4.221	**0.000****	-0.232^
	post-test	183.06	26543.00				
14. It is better to have only one sex partner for sexual relationship	pre-test	154.26	28384.00	11364.00	-3.799	**0.000****	-0.209^
	post-test	178.63	25901.00				
Sexual health norms and beliefs							
15. I believe in abstinence which means to avoid sex	pre-test	147.97	27226.50	10206.50	-4.213	**0.000****	-0.232^
	post-test	186.61	27058.50				
16. Females should be considered untouchable during menstruation	pre-test	173.31	31888.50	11811.50	-2.110	**0.035***	-0.116^
	post-test	154.46	22396.50				
17. A girl loses her dignity if she has sex before marriage	pre-test	172.11	31667.50	12032.50	-1.782	0.075	-0.098
	post-test	155.98	22617.50				
18. A girl can suggest a boy uses a condom if he suffers from an STI	pre-test	153.45	28234.50	11214.50	-4.084	**0.000****	-0.225^
	post-test	179.66	26050.50				

*note:*p<0.05; **p<0.001; ^=small effect (r<0.3); ^^=medium effect (r>0.3); ^^^=large effect (r>0.5)*

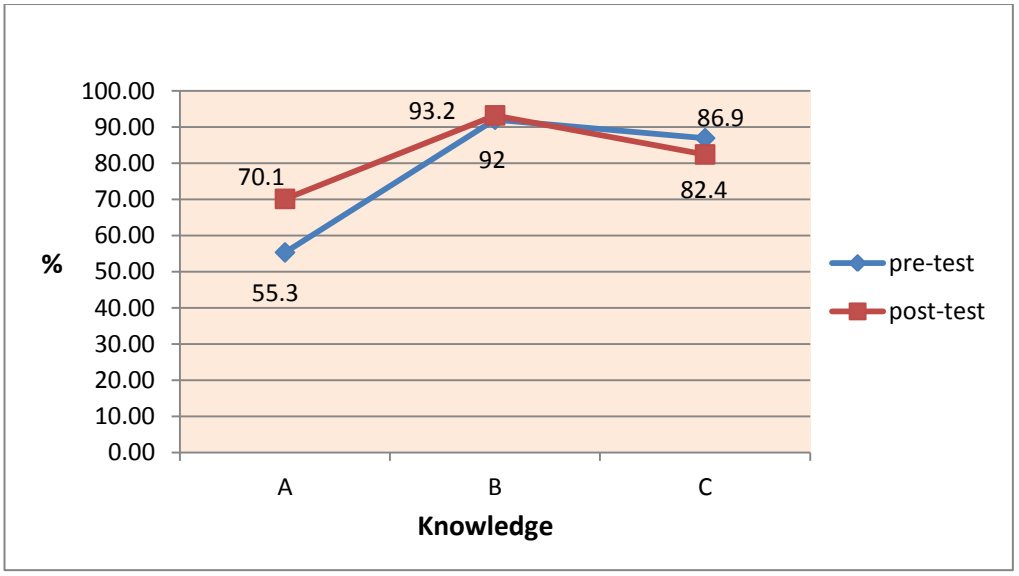
4.8. Participants' knowledge about preventive measures

This study also explored three preventive measures to HIV, STIs and teenage pregnancy from pupils' responses. These were I believe in abstinence which means to avoid sex (A), It is better to have only one sex partner for sexual relationship (B), and Condom is used correctly and consistently for safer sex purpose (C). In each control and experiment group, a 25% knowledge increase on ABC between pre-test and post-test was expected. It was assumed that 45% of pupils already had knowledge of ABC prior to the intervention and this would reach 65% after the intervention.

4.8.1 Control schools

Pupils' knowledge on *I believe in abstinence which means to avoid sex* (A) increased from 55.3% in the pre-test to 70.1% in the post-test, a total of 14.8% increase as shown in Figure 4.8.

Figure 4.8: ABC knowledge scores between pre-test and post-test

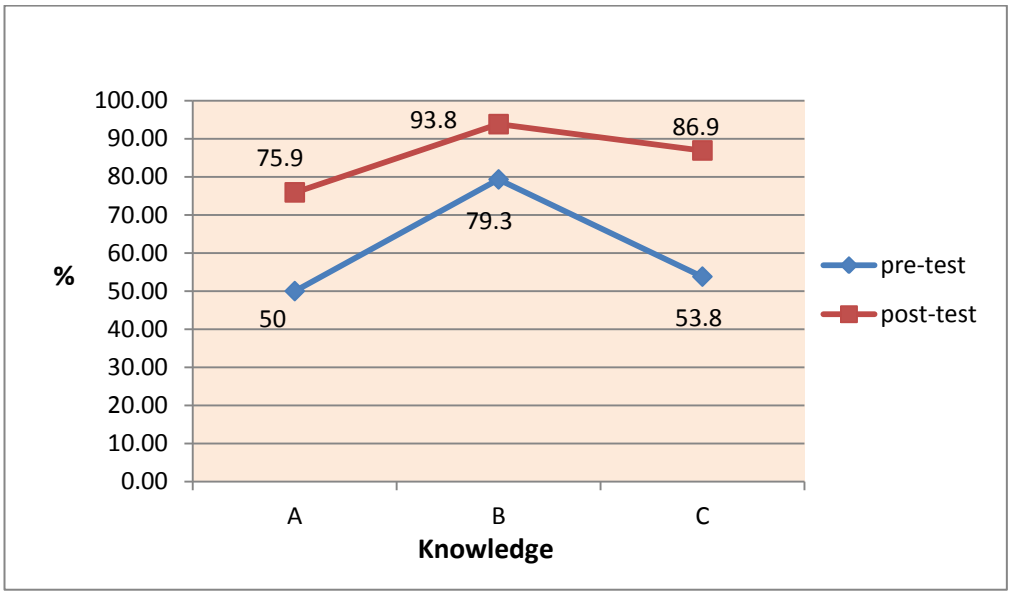


The second measure *It is better to have only one sex partner for sexual relationship* (B) was 92% in the pre-test and 93.2% in the post-test, showing a very slight increase of 1.2%. Conversely, the third measure *Condom is used correctly and consistently for safer sex purpose* (C) showed a decline trend in the post-test. It was 86.90% in the pre-test and 82.4% in the post-test, a total decline of 4.5%.

4.8.2 Experimental schools

Pupils' knowledge on *I believe in abstinence which means to avoid sex* (A) was increased from 50% in the pre-test to 75.9% in the post-test, showing a 25.9% increase as shown in Figure 4.9.

Figure 4.9: ABC knowledge scores between pre-test and post-test



The second measure *It is better to have only one sex partner for sexual relationship* (B) was 79.3% in the pre-test and 93.8% in the post-test, which showed another strong increase of 14.5%. The trend of increase was also observed for the third measure *Condom is used correctly and consistently for safer sex purposes* (C). It was

53.8% in the pre-test and 86.9% in the post-test, a total increase of 33.1%. Comparing the two figures (Figures 4.8 and 4.9) it was clearly seen that ABC knowledge increase was more consistent and robust in the experiment group than the control group.

4.9. Themes from the Focus Group Discussions (FGDs)

The qualitative information obtained from the FGDs were coded and read carefully to discover particular patterns, themes or responses. The content analysis of FGDs identified five themes, which were informed by the questionnaire outcomes as detailed below.

4.9.1 Curiosity and desire to know about sex

In the beginning, participants looked puzzled and embarrassed while talking about sex and sexuality related issues during the FGD. Female participants, especially, looked at each other and started laughing and giggling. They indicated that they tend to become silent and not ask questions when the teacher delivers sex education in the classroom. Also, most often, teachers do not ask them any sexual health related questions. Instead, teachers prefer that the pupils read sexual health chapters at home and do not ask any related questions in school the next day.

We feel very shy and embarrassed when the teacher starts delivering sex education in the classroom. We want to ask some questions, but feel awkward and uncomfortable (Focus group-5, 15 year old female).

Curiosity about sexual matters was one of the complicated and stressful issues that young people described in the discussions. The majority of the male students argued that they wanted to know more about sex and sexual health. However, it was not appropriate to express such feelings to others. Very few male students reported that they masturbated when they felt sexually aroused. Both males and females agreed that they wanted to make friendships, especially with the opposite sex, but they felt shy and embarrassed to do so.

We are curious to know about sex and sexual health. But we don't know whom to tell and whom to share with. (Focus group-4, 16 year old male).

There are no other means for entertainment programmes in my area where I live. When I become sexually emotional, I masturbate. I have been masturbating for two months. Sometimes, I feel very weak (Focus group-2, 17 year old male).

It was very interesting to know that the majority of the female participants agreed that they also have feelings about knowing about sex and sexual health, which they do not share with others. They were rather aware that sometimes, male students tease them into using sexy words and they feel awkward.

We also have that type of feeling to know about sex and sexual health but we never show it and tell others. In this case, boys are different. They can show by teasing us using very bad (sexy) words (Focus group-7, 15 year old female).

4.9.2 Communication gap with parents, teachers and seniors

The majority of participants agreed that there is a huge communication gap between parents and themselves. Most female participants reported that it was very difficult to share their feelings and experiences with teachers and parents. The participants frequently reported that senior people (e.g. uncle, aunt, sister, brother) do not listen to them even if they have useful and important suggestions.

There is a huge generation gap between parents and young people. Neither seniors listen to us, nor do we. I think this is because of communication difficulties within the family (Focus group-3, 16 year old male).

Most of us feel shy and hesitate to talk in front of senior people. This is because we never get a chance to share our feelings with them. They don't believe that we have right and helpful information. We also lack confidence and courage to speak to them. I don't know……..how to talk to them (Focus group-6, 17 year old female).

Some male participants had a different view, however. According to them, they can discuss general matters with parents and community members. However, talking about sensitive issues such as sexual health is always a difficult task. The majority of the participants agreed that sex and sexual health issues are not discussed within families. Almost all female participants reported that they felt shy and uncomfortable talking about such matters with family members.

I was very scared and shy to have my first period, although I couldn't tell others. The next day I told my mother and she helped me (Focus group-8, 17 year old female).

Our social norms and values have given limited rights and responsibility to the girls. It is not common to make a complaint or to share with others; even if girls are exploited or abused (Focus group-6, 16 year old female).

In Nepalese society, menstruation is associated with prohibition and restriction on work, sex, cooking and touching others (Adhikari, 2003). The majority of female participants reported that they are not allowed to cook or even go to the kitchen. They reported that they normally sleep at a distance from the day menstruation starts for a minimum of three days. On the fourth day, they should take a bath and only then be allowed to touch others and go to the kitchen for cooking.

In our society, girls are kept outside the house during the first menstruation period. Normally, we live in our neighbour's or relative's house for three days and brothers are not allowed to see us during this time (Focus group-5, 15 year old female).

Nevertheless, there were some differences between this norm and the actual practice among different castes. The majority of Tamang female participants (an indigenous group) revealed that they have more freedom in these norms compared to the more strict Brahman/Chhetri caste.

We have more freedom compared to the Brahman/Chhetri girls. They follow very strict rules during menstruation. They are not allowed to go to the kitchen or to touch others. However, it is absolutely normal in our culture (Focus group-8, 17 year old Tamang female).

Almost all participants agreed that sexual and reproductive health issues are not discussed in the family or in the classroom. This is because of social and cultural boundaries. However, they suggested the school teachers to use informal and participatory teaching approaches to involve pupils that could create an environment where sexual and reproductive health issues could be more widely discussed.

4.9.3 Sexual activities among young people

The majority of the participants agreed that boys and girls at schools do not engage in sexual activities. However, a few male participants argued that there is some chance when they have the opportunity for casual sex.

It is very common to find a girl when we go to the jungle (forest) for firewood and grass collection and herding. Sometime that (sex) can happen in a rush…(laughs) (Focus group-4, 17 year old male).

The majority of participants agreed that young people lack skills on sexuality and have poor negotiation and decision-making skills. This may sometimes force them to become involved in unsafe sexual activities. They also stressed that the school teacher should use participatory method to deliver sex education in the classroom. This could help them to obtain basic skills on sex education such as knowledge about condoms and information to discourage unsafe and coercive sex.

I cannot say what is right and what is wrong about sex. The definition of sex has changed in the modern world. It is just for fun. However, information is very

important. Participatory teaching method could help us to learn about sex education more easily (Focus group-1, 16 year old male).

A few female participants noted that some married men follow them when they are alone at home. This makes them feel insecure; however, there is nothing they could do to avoid it. In such conditions, they like to visit their friends' houses and spend time there.

When I am alone at home, I would prefer to go to my friend's house. I am afraid of being alone in my home (Focus group-7, 15 year old female).

Almost all participants thought that sexual relations should only take place between husband and wife. If this happens, there will be no diseases like HIV/AIDS and STIs, according to the participants.

Sexual relations should only be performed between husband and wife. We can learn it from our culture and society (Focus group-5, 16 year old female).

4.9.4 Influence of local customs, media and peer pressure

It was found that the local cultures have a big influence in encouraging young people to engage in different sexual activities. Discussions with the focus group participants revealed that there are many opportunities within some local cultures that directly or indirectly encourage young people to become involved in sexual activities.

Different people have different culture. People from indigenous groups have more freedom and they celebrate more customs and culture. Drinking alcohol is socially acceptable in our community. People from other castes such as Brahman/Chhetri are narrow-minded. They don't want to talk about sexual issues, whereas we do (Focus group-4, 17 year old Tamang male).

However, most of the Brahman/Chhetri participants reported that sexual matters are considered a secret issue in their community. They also described that inter-caste partnerships or marriage are also not generally accepted in their society.

Sexual matters are secret in all people in Nepal, it is more in Brahman/Chhetri people. However, changes in people's attitudes are taking place in recent days and it is affecting people's decision making. Recently, one Brahman boy married a girl from a so-called lower caste. There was no objection from the community people (Focus group-3, 16 year old male).

There are many festivals and entertainment activities in the community that young people think may provide opportunities for sexual activities. Participants reported that festivals like *Dashain* (great Nepalese festival), *Deepawali* (festival of lights), *Holy* (festival of colour) and many other celebrations that take place at night time could create favourable conditions for young people to form partnerships and engage in sexual activities.

In the festival, parents look happy and children have more freedom to go with friends. Boys and girls go together in singing and dancing in Tihar (festival of

l ights) in the night time. In such time, there is a chance of partnership formation and unsafe sexual contact (Focus group-1, 17 year old male).

TV channels, movies, magazines and internet were also frequently reported to be factors encouraging sexual matters among young people and particularly male participants.

We watch TV and films, read newspapers and listen to the radio. Many of them have sex and sexuality content. Nowadays, both boys and girls use media, films, newspapers and internet to pass their time. This motivates us to be sexually active (Focus group-4, 16 year old male).

The majority of the participants reported that the role of peers is very important in every aspect of young people's lives. Male participants argued that they mostly talk about sexual matters with their friends. Females seek advice from their friends on partnership formation. A few male participants said that they exaggerate and share their sexual experiences with their friends and they encourage them to do the same.

One of my friends always shares his sex related experiences... (laughs). We enjoy talking about it and we expect we could also do it (Focus group-3, 15 year old male).

On the contrary, very few female participants reported that they share their sexual feelings with each other. Both boys and girls accepted that there is a huge

demonstration effect to their behaviour, which motivates them to copy others' activities.

Females are very shy naturally. Friends are one of the encouraging and supporting factors. However, many of us feel uncomfortable sharing our sexual feelings with each other (Focus group-8, 16 year old female).

4.9.5 Sexual and Reproductive Health (SRH) knowledge and services

The majority of young people reported that they have poor sexual health knowledge. They insisted that such poor knowledge, along with poor access to sexual health services, could create a favourable environment for unsafe sexual practices in the future.

Most of us have very little knowledge about sexual health. We have seen some advertisements and posters about HIV and STI prevention, but these are not enough to prevent us from being exposed to unsafe sexual behaviour in the future (Focus group-2, 15 year old male).

Some participants believed that most young girls in the rural areas have unsafe sex and that they have very little knowledge about sexual health. They give birth prematurely and are busy with other household work.

More unsafe sex exists among young girls in rural areas. They have poor knowledge about sexual health which leads them to have children at a very early

age. This is the time of education for them, but deprivation and lack of education have resulted in being a young mother (Focus group-5, 17 year old female).

Most participants were ashamed while talking about condoms. According to them, sexual health materials are not available in their schools. Some participants think that condoms can only be bought by people who behave badly.

In my opinion, school should provide more information about sexual and reproductive health through leaflets, videos and other means of media. In general, condoms are not acceptable to be seen with a person in the society. If this happens, he/she is supposed to be not a good person (Focus group-3, 15 year old male).

On the other hand, some participants argued that information and education about sexual matters and contraceptive methods have encouraged young people to engage in pre-marital sex. Most male participants reported that the availability of condoms in private shops and health centres has indirectly encouraged young people to have sex before marriage.

Every young person knows how to have sex…(laughs). You can see many shops selling family planning materials and I think this encourages young people to get engaged in pre-marital sex (Focus group-3, 17 year old male).

The majority of the participants argued that fear of HIV/AIDS and pregnancies are the main reasons for many young people not engaging in pre-marital sex. Nevertheless, almost all participants accepted that engaging health experts from

external agencies to provide information about sexual and reproductive health matters and the wide availability of sexual health services could benefit young people in terms of better sexual health.

These days, people are afraid of HIV/AIDS and STI infection; so, they don't want to have unsafe sexual intercourse. However, better sexual health information and better services can help young people for better sexual health (Focus group-1, 15 year old male).

This FGD showed that young people in Nepal are keen to know more about sexual and reproductive health matters. However, they feel embarrassed and awkward posing any sexual health related questions to their relatives or neighbours.

4.10 Themes from the Key Informant Interviews (KIIs)

Based on the information received from school teachers and parents, four themes were identified from the contents analysis of KII as detailed below. The analysis was conducted by looking at categories, repetitions, metaphors and similarities in the transcriptions.

4.10.1 Parental attitude towards sex education

Some participants argued that sex education should be delivered from Grade seven, since teenage boys and girls have a growing interest in sex and sexual content due to globalisation. The lack of proper sex education has allowed a shift in their attitudes and behaviours toward unsafe sexual activities according to the participants. They

emphasised that males and females should be kept together while delivering sex education.

I have a positive attitude towards sex education in school students. My opinion is that sex education should be delivered to school students as early as Grade seven. Only then they can have enough time to know and understand the bigger picture of sexual health's impact on the society (KII-1, 57 year old male-Brahman).

The majority of participants agreed that sex education at the school level is very effective. According to them, at an early stage young people would be able to know what to do or what not to do. Almost all participants agreed that many Nepalese young girls are trafficked to other countries for sex, especially from rural areas. Many of them have little knowledge about sexual health matters. After several years, they return back to home but are often infected with HIV/AIDS and STIs. Some participants also stressed that many young girls give birth despite their intention not to conceive.

It is very effective when sex education is delivered in the school level. They will know what to do and what not to do at an early stage. They have curiosity towards sex related issues. Look……..many young girls in Nepal are trafficked every year and many of them do not have knowledge about sexual health matters (KII-3, 35 year old female-Tamang).

However, there was a common consensus among the majority of the participants that the delivery of sex education in schools is poor. They argued that sex education

policy is not practically applied which led to sex education programmes being badly understood and inadequately delivered in schools. As a result, pupils have low levels of knowledge and understanding about sexual health matters.

Despite our intention that pupils acquire the right sex education, it is not taught sincerely and effectively in the schools. This is because the education policy, especially sex education to the young people, is poorly considered and understood by the educationalists and policymakers (KII-2, 34 year old male-Brahman).

4.10.2 Discussions of sex and sexual health matters with children

Most participants agreed that due to social factors, parents do not talk about sexual matters with their children. However, they know that young people have more curiosity about sexual matters. Many Nepalese houses are open type homes and sexual relationships between husbands and wives are not confidential. In such conditions, there is a greater chance that young people have heard sexual conversations between their parents.

We know that young people have curiosity about sex and sexual matters, but the societal and cultural factors do not allow us to talk about it. In addition, children also learn about sexuality from the conversation of their parents, while the sexual environment for the husband and wife in most Nepalese homes is not confidential (KII-7, 42 year old male-Newar).

Only a few participants claimed that they have tried to talk about sex and sexuality with their child but they felt very shy. This created an uncomfortable situation for

both the parents and children. They experienced that it was easy to talk about sexual matters with other young people, but it was very complicated to talk with their own child.

In my context, I have tried to talk to my child about sex and sexuality but they feel shy. This created an uncomfortable situation among us. I have talked a lot about sexual health issues with many other young people. The social structure and the context have stopped us (parent and child) from being open to talk about sex (KII-9, 33 year old male-Newar).

Some female participants argued that it is easier and more comfortable to provide sexual health information to daughters compared to sons. However, the majority of both male and female participants agreed that mothers are far more effective than fathers in educating their children on sexual health matters.

It is better to provide sexual health information to sons and daughters by the mother rather than the father. Educating mother is more effective than educating father. Children see mother as a friend and it becomes more comfortable to communicate with each other (KII-6, 48 year old female-Tamang).

4.10.3 Partnership with schools

The majority of participants were concerned about forming partnerships with the Junior Red Cross Circle (JRC) which is a student initiative group in many Nepalese schools. Normally they organise campaigns for NGOs to visit schools and deliver

programmes on sexual health. Schools do not take any initiative to organise such programmes.

The Nepal Red Cross Society (NRS) is an established organisation in Nepal and they have different programmes designed for youths through JRC. They also organise school-based sex education programmes in partnership with NGOs. Schools should seek help and advice from both the NGOs and NRS (KII-10, 40 year old female-Gurung).

There were different views among participants about forming a partnership with an external agency. They reported that some schools work in partnership with other NGOs, but most of these have their own agendas in coming to the school irrespective of school policy. In this case, NGOs are more likely to approach the schools than the schools approach them. However, they also mentioned that NGOs have limited resources, e.g. time, budget or human resources. This leads NGOs to approach schools in a timely manner and to complete the given task as agreed upon with the funders.

Some schools work in partnership with other NGOs, but most NGOs have no partnerships with others. In this case, an NGO is more likely to approach schools than the school doing so (KII-11, 55 year old male-Newar).

Many participants argued that there is no partnership between schools and local communities to enhance sex education programmes. Sometimes, they invite local people to take part in the school programmes, such as parents' day and *Saraswati*

puja (knowledge worship day). They suggested that District Education Office (DEO) and school management committees could play an important role in engaging external agencies in implementing effective sex education programmes in schools.

There is no formal partnership between school and our community. The school management committee decides most of the things related to the school, except teaching. However, they can suggest what is to be considered while delivering sexual health information to the pupils (KII-5, 52 year old male-Brahman).

4.10.4 Suggestions for further improvement

Most participants agreed that the delivery of sex education is old fashioned and traditional in Nepalese schools. The current school sex education policy does not allow for the involvement of peer educators and health professionals to deliver sex education in Nepalese schools. Thus, it has failed to address the sexual health issues of modern young people. This has created difficulties for both teachers and pupils, especially for girls, in opening discussions on sex education topics. Therefore, the sex education policy should be updated and revised that could provide better sexual health information to modern young people. The majority of schools lack three-dimensional dummy models to show the human sexual and reproductive system. In addition, teachers also lack proper skills to teach in an interactive and informal way.

Today's world is globalised and the young people know everything from sources such as the internet. Every year they shift from one class to another. However, our teachers remain the same and updates are not observed among them as it should be. Authorities should also allow the involvement of health professionals from other

organisations to deliver sex education in schools. (KII-12, 59 year old male-Brahman).

Some participants also argued that male students tease female teachers when they deliver sex education in schools. Others thought that sex education was only the concern of health teachers. One participant strongly advised including school teachers and school management committees in designing and discussing the issue of sex education in schools. They should realise the need for sex education and should make other teachers aware of their roles and responsibilities toward the improvement of young people's sexual health.

Healthy school and healthy children is everyone's concern. School management committees should be bold enough to bring new ideas and take any decision to make the sex education programme effective in their school (KII-14, 62 year old male-Brahman).

Some participants emphasised that open discussions about sex education in schools could reduce undue hesitation among pupils and health teachers. Pupils could also feel comfortable discussing sex issues at home. Information related to the appropriate age for sex, and legal issues like abortion, marriage and giving birth could help young people improve their reproductive health.

We know that sex education is a sensitive issue, but open discussions about this topic could reduce the hesitation between teachers and pupils in school. They can freely talk about any sex related issue at home (KII-8, 30 year old male-Brahman).

The majority of the participants agreed that sex education programmes in school are not sufficient. If there are NGOs that are sexual and reproductive health expert,then they should be mobilised to deliver sex education in schools. Some of them also suggested strict school policies on sexual health issues. They wanted to ensure that pupils know as much as they could using audio-visual materials, e.g. role-play, flip charts, films, shows and so on.

Schools should develop strict sex education policies for their schools. This is to ensure that every child in their school is protected for their sexual health. This also generates a message for other schools and stakeholders to value their child and provide accurate and effective sexual health information (KII-4, 55 year old male-Tamang).

In this study, some participants were also from school management committees. They suggested that the schools should describe the delivery and importance of sex education programmes in schools. School management committees should also receive information about sexual health education. Every year the school management committees are reformed and new committee members join in the team. The new members should also be updated about sex education issues.

I am a member of school organising committee, however I have never known that our school has a school sex education policy. I strongly raised this issue in our previous meeting. Another thing, every year new members join the committee. In this

case, the new members should be updated about what's happening in our school (KII-5, 52 year old male-Brahman).

4.11 Summary of the chapter

The findings in this chapter indicated that there were no significant differences in the socio-background variables of participants between pre-test/post-test and control/experiment schools (please see Section 4.6.1). However, some responses were observed as statistically significant in the pre-test and post-test in the main questionnaire variables (please see Section 4.6.2). The experimental schools were more likely to report increased confidence in sexual health knowledge and understanding compared to the control schools (please see Section 4.7). This increase was also observed in the experimental schools that reported robust and consistent knowledge in preventive measures (ABC) (please see Section 4.8). This clearly indicated that the intervention had a significant positive effect on students' sexual health knowledge and attitudes.

The FGDs showed that young people in Nepal are keen to know more about sexual and reproductive health matters. However, they feel embarrassed and awkward in asking their relatives or neighbours any sexual health related questions. It was also observed that there is a huge communication gap between the pupils and their household members regarding any sexual health related information. The majority of both male and female pupils were aware about the physical changes taking place in their body. However, very few of them had turned to their peers to discuss it. A majority of the participants were still living in a dilemma without having specific knowledge about sexual health. Some participants were also engaged in pre-marital

relationships. Social norms, personal desires and media motivations have encouraged young people to be sexually active and to engage in unsafe sexual relationships. A majority of male participants agreed that girls should show more responsibility for their sexual health, since males are not responsible for any consequences brought about by unprotected sex. Nonetheless, almost all participants from FGDs and KIIs agreed that better sexual health information in schools could help them prevent sexual health related problems in the future.

CHAPTER-5: GENERAL DISCUSSION

5.1 Introduction

The aim of this study was to evaluate the effectiveness of school-based sex education programmes used to promote young people's sexual health knowledge and understanding in Nepal. To accomplish the aim, this study has had the following objectives; (1) To describe the existing sexual health knowledge and understanding of young people, (2) To explore the effectiveness between sexual health knowledge and the delivery of sex education, (3) To investigate the socio-cultural context of sexual health education and sexual relationships, and (4) To recommend appropriate teaching strategies to enhance the pupils' knowledge, understanding and behaviour for safer sexual health.

The main research question for this study was 'Does a health facilitator-led sex education programme improve young people's sexual health knowledge and understanding compared to the conventional teacher-led sex education programme?' Other sub-questions were; Do the media, custom and culture encourage young people to become involved in early sex? Are Sexual and Reproductive Health (SRH) services and information available to young people? Do young people access sexualised content from the internet and seek advice from peers for sexual health information? Do young people have poor knowledge and myths about sexual health and lack of skills in sexuality? Is the parental role an important factor in promoting young people's sexual health knowledge and behaviour? Is the partnership between schools and external agencies an important aspect in delivering sexual health

services and information to Nepalese young people? Which teaching approach would help young people to actively take part in classroom interaction? and Does the conventional sex education policy address the issues of modern young people's sexual health concerns?

The research hypothesis was described as, 'There is a significant difference in the post-intervention of control and experimental schools to improve young people's sexual health knowledge and understanding'.

This study used quantitative methods to investigate the effectiveness of delivering sex education in secondary schools. The quantitative information is further supported by qualitative information to obtain more insights into the practical side of sex education in Nepalese schools. The study has explored many issues around the sources of sexual health, sexual health knowledge and understanding and sex education programmes in secondary schools. This chapter discusses the findings from the data collection in relation to the research questions described in this study.

The findings indicated some fundamental errors and misconceptions in pupils' knowledge and understanding of the basic concepts of sexual and reproductive health in both groups of schools. In terms of the provision and effectiveness of teaching sex education in secondary schools, pupils' lack of sexual health knowledge posed a major problem to the educational researcher, policy-makers and curriculum developers. It was observed that pupils' overall knowledge and understanding of sex education was low at the pre-test. However, in the experimental schools it was increased significantly after the intervention, unlike the control schools.

This study hypothesised that, 'there is a significant difference in the post-intervention of control and experimental schools to improve young people's sexual health knowledge and understanding (H_1)'. This hypothesis was accepted, since there was a significant difference with the experimental schools outperforming the control schools at the post-test (please see Sections 4.7.1 and 4.7.2). Therefore, the null hypothesis (H_0), 'there is no significant difference in the post-test of control and experimental schools to improve young people's sexual health knowledge and understanding' was rejected.

Pupils' sexual health knowledge and understanding is influenced by a variety of interrelated factors, such as parental influence, gender roles, language and culture, myths about sex and sexuality, peer pressure, media and communication, family support and external experts in school. The FGDs with pupils and KIIs with parents and school teachers provided more information about what influences young people's sexual health knowledge other than sex education programmes received at school.

5.2 Parental education and the communication gap with children

In this study, more than a quarter of pupils reported that their fathers had completed school leaving certificate education (please see Section 4.3.5), while mothers had completed only primary education (please see Section 4.3.6). This clearly showed that pupils' mothers' education level was low compared to fathers', which is very common in South Asia (World Bank, 2010). This study revealed that the majority of young people feel shy talking about sexual health matters with their parents and this

finding seems to relate to the observations of Regnerus (2005) who reported that parents have always been criticised for not discussing sexual matters with children.

Parental communication about sex and sexuality is very important in shaping their children's knowledge and understanding about sexual health (*ibid.*, 2005). In this study a majority of participants agreed that there is a huge communication gap between parents and children in learning about sexual health issues. The home is the first socialising context during a child's early years before going to school. Parent-children communication about sexuality is an important element in children's sexual behaviour. In Nepal, the majority of females are house bound and are not always linked into other social institutions (Furuta and Salway, 2006). In such a case, they are beyond the reach of many educational and social programmes.

Mothers could play an important role in conveying information about personal development and sexual health. However, they also require some education as well as support and encouragement to discuss sexual health issues with their children. They may not have sufficient vocabulary and knowledge to discuss Sexual and Reproductive Health (SRH) issues. Ip, Chau, Chang and Lui (2001) have suggested that the engagement of health professionals could support the provision of appropriate sex education for parents who do not know how to engage their children in sex education discussions.

It is common not to discuss sexual health issues, such as menstruation and having babies, with the parents, since there is a fear that young people would become conscious of their sexuality; so mothers are reluctant to discuss it with their

daughters. In such cases, young people, especially girls, need emotional support and assurance that menstruation is normal and healthy. Parental support for young people is not only helpful to influence their SRH behaviour, but it also influences their general health practices (Mahat and Scoloveno, 2001). It is evident that parents' involvement in equipping their children with the skills to communicate and interact effectively also influences their children's sexual and reproductive health behaviours (Stone and Ingham, 2002).

Parents are reluctant to discuss sexual health issues with their children and this is due to feeling embarrassed and experiencing discomfort while doing so (Ogle, Glasier and Riley, 2008; Sridawruang, Pfeil and Crozier, 2010). In contemporary society, parents have a significant role to play in educating their children. Some studies conducted in the developed countries (e.g. UK and US) claimed that the Government and Education Authorities have encouraged schools to work with parents when providing formal sexual health education (Walker, 2004; Eisenberg, Bernat, Bearinger and Resnick, 2008). Some other studies have also suggested that parents could be the main sex education providers of their children (Turnbull, van Wersch and van Schaik, 2008; Goldman and Bradley, 2011). This is because parents have a responsibility to help their children develop, grow and remain healthy. However, for the majority of Nepalese parents this feels like an intimidating task.

There is evidence that community programmes have been established to help parents, especially in building their knowledge and confidence to teach their children about sexual matters (Wurtele and Kenny, 2010; Trejos, Treviño, Brice and McPherson, 2012). These programmes have focused on the different qualities of parents and on

the importance of effective communication. Good parents facilitate their children's learning at all stages of their lives, providing them with the knowledge and skills to meet their full potential in the transition to adulthood (Harris and Goodall, 2008). This includes the importance of effective communication between the parents and their children. Interpersonal relationships, interaction and pattern integrations are the most important features of effective communications in the family (Grotevant and Cooper, 2009). Effective communication promotes meaningful learning and reaches the needs of young people.

5.3 Gender roles in education

More than half the pupils in this study were female (please see Section 4.3.2). The National Survey Report (NDHS/New Era, 2011) has reported that girls' education has substantially improved in the past ten years. Nevertheless, girls continue to lag behind boys in educational attainment (*ibid.*, 2011). An educated girl, if she becomes a mother in the future, can help her children to improve their knowledge and skills more easily. This study revealed that some mothers were keen to provide sexual health information to their children. However, their lack of proper knowledge of sexual health matters combined with their lack of assurance hindered them in speaking confidently with their children.

The majority of female participants stated that there were gender inequalities in acquiring educational opportunities. This is similar to a previous study done in Nepal (Waszak *et al.*, 2003). The study described how Nepalese parents are more likely to educate sons than daughters. They are often kept at home to help with domestic chores or to look after young siblings. Boys are valued more highly than girls. In

many areas of Nepal, men are expected to work outside the home, while women are expected to be in the home with the children (Francoeur and Noonan, 2004). Many Nepalese parents often view their daughters' education as a wasted investment (Thapa-Oli, Dulal and Baba, 2009). In a more traditional society, it is not surprising that women's access to education and employment opportunities are limited. The UN report on millennium development goals has highlighted that the children and adolescents from the poorest households are at least three times more likely to be out of school than children from the richest households (UNDP, 2013). In the case of girls, they are more likely to be out of school than boys among both primary and lower secondary age groups, even for girls living in the richest households (*ibid.*, 2013). This suggests that more focus should be given to keeping young people in education, especially females, as they are more likely to drop out of education.

In Nepal, the literacy rate is lower for young women (73%) than for young men (85%) and access to jobs is also much more limited for women than for men (NDHS/New Era Nepal, 2011). Women face systematic and society-wide discrimination in many facets of life, where religious and cultural tradition, lack of education and ignorance of their legal rights are present (Regmi *et al.*, 2010). In fact, this is not unexpected, as most other South Asian countries have similar patterns. An Indian study found that sons have more freedom than daughters and they are encouraged to attend school, seek employment and socialise with peers outside the home (Alexander, Garda, Kanade, Jejeebhoy and Ganatra, 2007).

The majority of participants from the KII shared how females have less freedom to talk and discuss sexual health issues compared to males. Nepal has a patriarchal

society where men are the decision-makers and hold positions of power and prestige (Poudel and Carryer, 2000). Women have little power and choice (*ibid,* 2000), as is common in South Asia (Jejeebhoy, 1998; Garg, Sharma and Sahay, 2001). These situations may force girls to keep quiet, despite being sexually harassed and discriminated (Ali, Ali, Waheed and Memon, 2006). These findings suggested that there is an inequality to acquire sexual health knowledge between boys and girls in Nepal. Some girls seem to be more open in talking about sexual matters. This could be due to greater access to mass media, such as movies and internet (Regmi *et al.*, 2010).

5.4 Impact of language and culture

In this study nearly half the pupils were from the Brahman/Chhetri caste category; others were from different ethnic backgrounds (please see Section 4.3.4). People with a different ethnic background have more freedom to speak about sexual matters compared to the Brahman/Chhetri caste and they have different languages and cultures. They also have different norms and values pertaining to sex and sex related issues in the family and in society.

Sexual and reproductive health topics are considered dirty and taboo and they are hardly ever discussed openly within families in Nepal (Regmi, van Teijlingen, Simkhada and Acharya, 2010a). Chandiramani (1998) described the language, which is used in the society to give shape, meaning to experiences and impressions and provide a framework. However, in most Nepalese societies, communication on the issues of sex and sexuality is marked by a lack of vocabulary (*ibid.*, 1998). Many teachers and health professionals also find it difficult to talk about sex and sexuality

issues due to cultural norms and values (Regmi *et al.*, 2010a). Thus, there is a need to alert the stakeholders and provide a better option to meet these challenges. Most often, they feel more comfortable describing these terminologies in English (Pigg, 2001). Use of English words may make it possible to overcome embarrassment inherent in the language (*ibid.*, 2001). However, the level of understanding of beneficiaries should be evaluated, since many young people in rural areas, or those who drop out of school, may not be familiar with this terminology.

In Nepal, many young people often share experiences of puberty and sexual desires with their peers, as they consider it shameful to discuss it with their parents or siblings. This might influence their sexual health knowledge seeking behaviour. Young people often do not seek sexual health information, as they do not want their parents, relatives or community to know that they are sexually active (David and Olufunmilayo, 2007). The reality is that there are socio-cultural barriers to discussing sex and sexuality issues within families in many Asian countries. For example, a study conducted in Pakistan by Hennink *et al.* (2005) clearly reported that the majority of fathers were unlikely to discuss sexual health matters with their sons due to socio-cultural taboos.

In many of the South Asian countries, it is believed that discussing sexual issues with young people could motivate them to have pre-marital sex (Bott and Jejeebhoy, 2003). There were similar findings observed in other Asian societies (Garg *et al.*, 2001; Ali *et al*., 2006). The majority of female participants also reported taboos about menstruation, which is also reported in an Indian study (Garg *et al.*, 2001). During menstruation period, girls are considered impure (*ibid.*, 2001). Most females

in this study accepted that during menstruation they are separated from the family, restricted in their interaction with boys, not allowed to touch the god statue or go into the kitchen. In such conditions, many young girls face problems and are deprived of basic facilities. Therefore, it is very essential to inform the community people about menstruation as a natural process.

It is interesting to see that female participants from some ethnic groups (e.g. Tamang, Rai, Limbu, Newar) had very liberal views and practices about sex and sexuality compared to participants from the Brahman/Chhetri caste. Possibly, there is some religious influence on these people with such an ethnic background, as most of them are Buddhist. Buddhism has a fundamentally egalitarian view of men and women and also offers social liberation to young females (Francoeur and Noonan, 2004). A previous study carried out in Nigeria has also shown the influence of social and cultural factors, religion and local belief factors on a couples' family planning choices (David and Olufunmilayo, 2007). In Nepal, Brahmin/Chhetri is the most socio-economically advantaged group (Central Bureau of Statistics Nepal, 2012). Therefore, it could be argued that better socio-economic conditions are linked with less permissive attitudes and behaviour to sex and sexuality. Further research is necessary to explain the different views of ethnic groups in Nepal towards sex and sexuality issues.

5.5 Poor knowledge and myths about sexual health

In the post-test, more young people from the control and the experimental schools responded that females are touchable during their menstruation period (please see Sections 4.7.1 and 4.7.2). The FGDs, however, clearly indicated that girls were kept

outside the house during menstruation. It was also interesting to note that many girls were discouraged from complaining even if they were sexually abused.

In Nepal, many young people still have myths about sex and sexuality, which causes anxiety and depression. For example, most boys thought that masturbation might lead to impotence and weakness, which is similar to the findings from another study conducted in North India (Bhugra *et al.*, 2007). However, some young people in this study considered it as normal and acknowledged that such a habit is common and acceptable during adolescence. This clearly suggests that young people learn about sex and sexuality as they grow. Almost all participants expressed their desire to have better school sex education. At present, they prefer to obtain help and information about sexual health from their friends. However, there are concerns that their friends could have limited and incomplete information. They further argued that the provision of alternative entertainment programmes could help to ease their sex related feelings. These programmes could be musical concerts, stage dramas or outdoor sports.

A study among adolescents in the UK reported a decreased likelihood of participating in sexual and other risky behaviours if leisure time is spent with family or going to church (Akker and Lees, 2001). However, the socio-economic and cultural impact and cost-effectiveness of such activities should be investigated in detail in the Nepalese context. Young people's knowledge and attitudes on sexual health, as well as the myths surrounding sexuality, reveals that most young people have limited information about these issues, which is not surprising (Simkhada *et al.*, 2010). Another study with adolescent girls in rural Nepal revealed that they have

very poor knowledge and understanding about menstrual hygiene (Adhikari *et al.,* 2007). This suggests that detailed information about menstruation should be incorporated into the topic of sexual health.

Some other studies carried out in South Asia suggest that young people, particularly females, have limited access to sexual health services for the prevention of pregnancy and STIs (Ali *et al.,* 2006; Jaya and Hindin, 2009). One possible explanation is that South Asian females have limited access to sexual health information from relatives and family members. However, there is some evidence that through mother-daughter communication it is possible to transfer sexual and reproductive health information to young girls (Ali *et al.,* 2006). This suggests that mothers could be trained to play an important role in disseminating sexual and reproductive health knowledge to their daughters. Hennink *et al,* (2005) reported that young people in Pakistan have received information about relationships and sexual health from religious books. This approach could be an alternative way of informing communities, where conservative and religious beliefs are present. Some issues surrounding sexual health, particularly HIV and reproductive systems have been incorporated in Nepalese school sex education curricula. However, most young people felt that they are not very effective in increasing their sexual health knowledge and understanding.

Nepalese schools showed poor teaching of sexual and reproductive health, which is associated with teacher embarrassment and lack of specific knowledge (Acharya *et al.*, 2009). This is because teachers are not adequately trained on how to transfer information on sensitive issues. In addition, young girls might feel uncomfortable

discussing sexual health issues with male teachers, or in front of their male classmates. In such a condition, young people might seek sexual health advice from non-professional sources. In reality, this is an important structural issue, which needs to be considered in the development of sexual health education programmes (Perera and Reece, 2006). Thus, there is an urgent need to provide accurate sexual health information and user-friendly services about sexuality, reproduction and contraception to young Nepalese people. The differences in social and cultural environments, including the characteristics of the young people, must be taken into consideration when designing such sexual health programmes.

5.6 Influence of peers and mass media

In the experimental schools, there was a firm belief that friends/peers are the main source of sexual health information (please see Section 4.7.2, Table 4.10). The qualitative information revealed that young people were motivated by their peers to become involved in sexual activity. They enjoyed talking and sharing sex related experiences with each other. In addition to the influence of their peers, the majority of young people were also influenced by the mass media and social events taking place in their society. Many sex related videos and internet could cause young people to be 'naughty' and to be open towards unsafe sexual behaviour giving them more opportunity to form partnerships and have unsafe sexual relationships.

Peers could play an important role when taking decisions on sexual health knowledge and behaviour. A study in India revealed that 32% of females and 42% of males have asked friends to intervene on their behalf (Jaya and Hindin, 2009). This suggests that young people have a tendency to make decisions through mediators and

peers help by providing important information (*ibid.*, 2009). Young Nepalese people prefer not to engage with their relatives to obtain sexual health information; instead, they prefer friends for this task. Perhaps there is a fear that relatives could communicate sexual health issues to their family who could ask for clarification or even lead to clashes within families. Young Nepalese people rely heavily on their friends to receive sexual health information. This is similar to Pakistan, where 57% of adolescent males received information about sexual and reproductive health matters from their close friends (Ali *et al.*, 2006). Friends and peers are also the source for a variety of sexuality related information, such as pleasure and sexual techniques, masturbation, wet dreams and bodily fluid hygiene, pregnancy and contraception (Hennink *et al.*, 2005). The majority of young people said they believe their friends more than their families. A few young men are found to discuss sexual health issues with their brothers and seniors. This is similar to another study which found that children with older siblings (particularly same sex ones) frequently claimed that they were better off in terms of learning about sex and relationships (Buckingham and Bragg, 2004).

In Nepal, young people often follow their friends and in some situations they feel forced into having bad experiences around sex. However, in some situations, it is not always possible to receive proper information through friends and peers. A study of Iranian youths found that a major source of information for adolescents on puberty and sexual matters was peers, which could discourage regular condom use (Mohammadi, Mohammad, Farahani, Alikhani, Zare, Tehrani, Ramezankhani and Alaeddini, 2006). Another Nepalese study has described that peer pressure was a possible reason for pre-marital sex among college students of Kathmandu (Adhikari

and Tamang, 2009). The above findings support the perception that peer pressure encourages young people to have sex (Smiler, 2008).

Young people are exposed to extensive information on sexuality through globalised mass media (e.g. radio, TV, movies, books and internet). Hennink *et al.* (2005) have found that most Pakistani young men and women have identified the media as the most prominent source of information during their sexual development. In Nepal, many young people read or watch different forms of sexual content while away from home i.e. book-shops, internet café and open places (Regmi *et al.,* 2010). However, young females' presence in such places is almost nil (*ibid.*, 2010). This is because young Nepalese females feel uncomfortable reading such material in open places, which highlights their low participation in reading educational materials (*ibid.*, 2010). Another South Asian study has also reported that young females have limited use of mass media for the acquisition of sexual health related information (Ali *et al.*, 2006). There are more opportunities for young females to receive information on sexual and reproductive health; however, more emphasis is needed for this opportunity to be grasped (*ibid.*, 2006).

Young people have a belief that exposure to mass media encourages them to learn about sex and sex related content more comfortably and securely, as there are no family members to interrupt (Regmi *et al.*, 2010). A Sri Lankan study showed that young people's exposure to sexually explicitly materials was the predictor of penetrative intercourse in both males and females (Perera and Reece, 2006). Globalisation and the increasing influences of modern culture have a great effect on many young people in the developing world. They are in a position to challenge the

traditional norms and values around sex and sexuality. Young people's increase in pre-marital and extra-marital sex is seen by many as a consequence of the introduction of Western norms and values (Villarreal, 1998). Some studies provide strong evidence that young people who have access to internet and satellite television possess more permissive attitudes toward pre-marital sexual intercourse (Collins *et al.,* 2004; Mohammadi *et al.,* 2006).

A study conducted in Southern Nepal has also shown that those watching television regularly were 51% more likely to be engaged in risky sexual behaviour than their counterparts who rarely watched television (Tamang *et al.,* 2001). It is important to bear in mind that poor people in Nepal are less likely to have access to mass media, are less educated and are more likely to live a conservative and traditional life. Parents could watch sexual content related television shows with their children and discuss any incorrect beliefs and attitudes about sexual health. Mass media could also be used as a positive way to disseminate sexual health information to Nepalese young people. A research has suggested that the mass media could be an effective medium to communicate important information on sex and sexuality issues (Hennink *et al.,* 2005). Young people identified the media as the most prominent source of information on sexual development (*ibid.,* 2005). This suggests that the use of media, particularly television and internet (e.g. computer, mobile, tablet), for sexual and reproductive health information would be effective for young people.

5.7 School-based sex education and the role of health professionals

After the intervention, participants in the experimental schools appropriately responded (significantly) to 13 out of the 18 sexual health knowledge questions (please see Section 4.7.2). This clearly indicates that pupils' sexual health knowledge and understanding is improved after the intervention. The majority of pupils were also aware of comprehensive, practical and participatory sex education that could enhance sexual health knowledge and the likelihood of engaging in safer sexual behaviour. Most parents believed that relevant topics in sex education could help their children to manage today's sexual health problems.

It is essential to provide comprehensive education on Sexual and Reproductive Health (SRH) issues. This should be done to make sure that young people make responsible and healthy decisions to protect themselves from situations and behaviours that would place them at risk of HIV and STI transmission (Adhikari and Tamang, 2009). However, many SRH issues are still difficult to discuss within Nepalese families, but are easier to discuss with friends/peers. A Nepalese study has suggested that using trained peer educators could be an appropriate approach to address these issues (Gautam, 2004). However, this is also not free from challenges as it is often difficult to develop a network among pupils if they do not attend school regularly.

Moreover, school teachers should be provided with culturally appropriate training to select and recruit peer educators coming from various socio-backgrounds (*ibid.,* 2004). A study conducted in Nepal showed that the sex education quality was very poor because of insufficient preparation by teachers, lack of suitable

teaching/learning materials and lack of school and community support (Pokharel *et al.,* 2006). This clearly suggests that there is a need to establish, strengthen and sustain an effective means of delivering school-based sex education.

Peer education is currently one of the most widely adopted health promotion strategies used with young people and is almost universally represented as effective (Price and Knibbs, 2008). In developing countries, very few evaluations have been made to assess its impact scientifically and rigorously (Speizer, Magnani and Colvin, 2003; Agha and Rossem, 2004). Most studies done in the Western world have shown a positive impact of the peer education approach. For example, one of the few randomised controlled trials (RIPPLE study) conducted in the UK noted that peer educators reported positive changes in sexual health knowledge and changes towards more liberal attitudes (Strange, Forrest, Oakley and the RIPPLE Study Team, 2002). Moreover, they believed the programme would have a positive impact on their confidence in relationships and on their sexual behaviour (*ibid.,* 2002). However, most of the peer educators in the RIPPLE study were from lower socio-economic backgrounds and were high academic achievers. This suggests that socio-economic conditions and other characteristics such as education should be considered while selecting peer educators.

Schools are the ideal setting for sexual and reproductive health education and many believe that a large number of adolescents and young people could be reached through this setting (Speizer *et al.*, 2003; Lee, Chen, Lee and Kaur, 2006). A majority of young people in this study have also highlighted the benefit and importance of school-based provision of SRH information. They reported that family

members provide less support for acquiring sexual health information. However, the benefit of school-based sex education is that delivery of such education and information within schools is less likely to receive criticism from family members. They viewed teachers as being poor sources of sexual health information and that many teachers are uncomfortable about delivering sex education. This suggests that pupils prefer health teachers whom they find approachable on SRH topics and who involve them in the learning process, rather than conventional teaching.

This highlights that there is a need for structured teaching programmes to improve SRH awareness in schools. Sex education programmes implemented in other geographical settings have also shown effective change in young people's sexual behaviour (Mellanby *et al.*, 1995). Another study done in four schools in Eastern Nepal showed the positive impact of a structured teaching approach to students compared to conventional teaching methods (Dhital, Badhu, Paudel and Upreti, 2005).

School-based sex education programmes improve awareness of the risks associated with sexual activity and improve risk reduction strategies among young people (Wellings *et al.*, 2006). The programmes also increase self-effectiveness and promote the intention to practice safer sex. Furthermore, they delay the onset of sexual activity (*ibid.,* 2006). Other studies have also shown that specific sex education programmes could delay the initiation of intercourse, reduce the frequency of intercourse, reduce the number of sexual partners, or increase the use of condoms or other contraceptives (Kirby *et al.,* 1994). Despite having different views on the approach to sex education, a majority of pupils in this study agreed that both girls

and boys should be taught together while delivering sex education in schools. However, a UK based study did not include boys and delivered a sex education programme to girls (Strange *et al.*, 2002). This could be because these girls believe that boys often cause disturbances during sex education classes (*ibid.*, 2002). These girls might also have a belief that the subject matter provides boys with an opportunity to use sexual matters and language to discourage them.

McCabe (2000) has clearly noted that sex education should include different partners who have various roles, since it is a family and social responsibility. Young people require sexual health information, advice and access to sexual health services (*ibid.*, 2000). Health professionals could provide sexual health information and treatment to young people in a confidential manner, but these health professionals should be acceptable for the schools. Health professionals who have worked in schools and have developed a good relationship with the teachers and students are mostly liked by the schools (*ibid.*, 2000). Therefore, it is essential that the health professionals are trained in a manner to fulfil the requirements of the young people.

It is important to develop professional protocols that could help schools and external agencies to work together for the welfare of the pupils and parents (*ibid.*, 2000). A majority of Nepalese family planning service providers offer information and advice on sexual health and use of contraception. However, young people do not feel comfortable to visit these service centres, since they fear to be stigmatised while using such services. Therefore, young people would prefer such organisations' sexual health services to be associated with other services.

5.8 Knowledge about preventive measures

The experimental school demonstrated a high and robust increase in preventive knowledge after the intervention (please see Section 4.8.2). In the control school, the average ABC knowledge score was increased from 78.06% to 81.90%, a 3.84% increment after the intervention. However, in the experimental school the average ABC knowledge score was increased from 61.03% to 85.30%, a 24.27% increment after the intervention. This could be the sign of a methodically designed sex education programme delivered by trained health facilitators. Nevertheless, pupils were still not sure about other sexual health issues such as whether masturbation causes any harm. Some pupils believed that sexual activities should occur only between husband and wife. Overall, the majority of pupils were afraid of having condoms, since having them was seen in society as a sign of being a bad person.

The majority of young people in Nepal do not use condoms because of the unavailability of condoms, unplanned sex, coercion, embarrassment and poor negotiation skills (Regmi *et al.*, 2010a). The reasons for not using condoms were also reported in other studies carried out among young people in Nepal (Tamang *et al.*, 2001; Puri and Cleland, 2006). The studies highlight that there are still many obstacles that inhibit young people from using condoms, despite awareness of their efficacy. These include lack of easy access to condoms, lack of risk perception and negative association of their use.

Puri and Cleland (2006) have stressed that the low prevalence of condom use and poor access to condoms in many rural areas needs attention to promote sexual health among Nepalese young people. The FGDs with pupils revealed that a majority of

them have not been involved in unsafe sexual activities. However, it is essential for them to know about the use of condoms.

A study conducted in Nepal revealed that 23% of young people had visited Female Sex Workers (FSWs) at the time of their first sexual intercourse and the reported condom use was very low (Adhikari and Tamang, 2009). This could have happened because some young people believe that condoms reduce sexual pleasure during intercourse. For example, a Sri Lankan study found that only 27% of young males and less than 10% of young females reported ever having used a condom when participating in sexual intercourse (Perera and Reece, 2006). Warner and Steiner (2002) also found that a significant proportion of their study participants (74%) reported having sex without condoms. Reasons for males' most recent failure to use condoms included pleasure related reasons such as unwillingness to interrupt foreplay and fear of loss of erection.

It is widely accepted that condoms are effective in preventing HIV transmission when used properly and consistently (Slaymaker, 2004). In Nepal, the Ministry of Health has also promoted abstinence and delay of sexual activity as one of the strategies for young people to reduce the risk of HIV/AIDS and STI infections (MoH Nepal, 2000). However, it is worth noting that many young people worry that asking their partner to use a condom implies that they think their partner is diseased. One possible explanation is that perhaps young people prefer to engage in condom-free intercourse as that can be seen as a sign of trust between partners. These issues are well described in studies in Africa. Marston and King (2006) argued that wanting to use a condom could be interpreted as a sign of carrying diseases in South Africa and

Uganda. These findings highlight the need for innovative strategies to persuade young people to know about and use condoms properly.

In this study, female participants were less likely to speak about condom use during discussion programmes. This shows that girls have too little knowledge, or they feel too shy, to talk about the condom issue; this was similar to findings observed in other studies (Kiapi-Iwa and Hart, 2004). This inability to discuss and negotiate condom use places girls in a very vulnerable position, with increased chances of unwanted pregnancies or STIs. This stresses that more life-skill based education and information is needed for female students to acquire knowledge and negotiate these issues properly. Perhaps these skills might also help them to avoid coerced sex.

There is evidence that verbal communication prior to intercourse between partners has a positive impact on contraception and its use (Coleman and Ingham, 1999). It is also argued that opposing pressure or persuasion from the sexual partner, through negotiation and through receiving assertiveness training, could improve the practice of condom use (Coleman, 2001). However, it is also possible that discussions prior to intercourse may not always be effective, particularly if condoms are not readily available when they are needed. Young people could be encouraged more to become aware of the availability of condoms.

The majority of Nepalese young people agreed that they felt embarrassed while talking about condoms and other sexual health services with their parents and relatives. In fact, such embarrassment has also been observed in other studies conducted elsewhere (Roberts *et al.,* 2005; van Teijlingen *et al.,* 2007). This

highlights that embarrassment exists among young people around issues related to sex education and sexual health services. A previous study in Nepal reported that even urban adolescents were too embarrassed to obtain condoms from the family planning clinic or pharmacy (Jha *et al.*, 2010). This suggests that issues around sexual and reproductive health are still considered a taboo in Nepal. To visit a pharmacy and obtain a condom is unthinkable for young people, especially for female students (*ibid.*, 2010). Hence, it is important for policy-makers, health service providers, teachers and community leaders to acknowledge and understand pupils' emotions, especially feelings of embarrassment, in order to be able to improve future sexual health services and education.

The majority of pupils in this study responded that private medical shops are the preferred place to receive any sexual health services including the purchase of condoms. In fact, private clinics are increasing sharply in Nepal (NCDA, 2013). It is also argued that a large proportion of SRH services in Nepal is provided through private providers (*ibid.*, 2013). For example, a review has highlighted that contraceptive use could be increased through supporting private providers (Peters, Mirchandani and Hansen, 2004). One possible explanation is that services in these settings may pay attention to confidentiality since these stores are business oriented and might not ask paying customers too many embarrassing questions. This suggests that interventions which incorporate providing contraception and other sexual health services could be run through the private sector. However, the fee for these services should be reasonable and affordable.

The young people in this study believe that confidentiality and friendly services are poor in most government-supported structures and that these service centres are not designed in a way that invites young people. However, in Nepal many young people still have to rely on government health services. These service centres (e.g. health posts, health centres or hospitals) open at the same time as schools. So, young people miss access to sexual health information and services while the schools are open. Thus, they also face challenges when obtaining SRH information and services.

For young people the same opening hours of clinics and schools mean barriers to accessing sexual health services (Langhaug, Cowan, Nyamurera and Power, 2003; Health and Public Service Committee, 2005). This highlights that there should be a provision to open sexual health clinics during weekends and holidays for school-going young people. In addition, lack of access to condoms due to the distance from a local health centre is also a barrier to condom use (Creel and Perry, 2003). Young people could be encouraged to visit the sexual health service centres, if these centres are established in a convenient place (Regmi *et al.*, 2010a). Likewise, condoms and educational materials such as booklets and pamphlets provided through these service centres would encourage young people to visit frequently (*ibid.*, 2010a).

The existence of SRH services alone is not enough to ensure appropriate information and healthcare. Public health centres in Nepal usually have very long and highly visible queues. Perhaps that makes young people more uncomfortable and there is also a concern about being seen by their friends and relatives. These situations might push young people to visit traditional healers and private shops for different SRH services as the only way to obtain confidential and respectful treatment within their

limited means and mobility. This suggests that young people are more concerned about privacy and confidentiality than preventing teenage pregnancy (Swann, Bowe, McCormick and Kosmin, 2003). This is a particular problem for young females who, in seeking to obtain these forms of contraception, need to make face-to-face contact with a sexual health professional or a pharmacist. If the situation is to change, there is clearly a need to find innovative ways to make all aspects of SRH service more youth friendly.

5.9 Role of families in young peoples' sexual health knowledge and behaviour

A significant number of pupils were aware of parental counselling as an important part of young people's sexual health development in both groups of schools after the intervention (please see Sections 4.7.1 and 4.7.2). This clearly suggests that the role of family members is important in promoting and enhancing the sexual health development of young people. However, the qualitative information revealed that the family members do not trust young people to have useful and applicable sexual health information. These parents knew that it was important and essential to provide guidance on sexual health issues to their children; however, they lacked the confidence to do so.

Family structure provides children with the developmental context to grow up and learn from parents and older siblings. However, there are variations within families that determine the relationships between parents and their children. The positive influence of parents on discussing sexual issues has a beneficial role over their children's sexual behaviour (Ngom, Magadi and Owuor, 2003). Good parent-child relationships showed the following positive effects - teenage pregnancy reduction,

young people remaining sexually abstinent, fewer sexual partners, and the prevalence of contraceptive use when they engaged in sexual relationships (Ackard, Neumark-Sztainer, Story and Perry, 2006). On the contrary, in families where there are single or divorced parents, adolescents are at greater risk of early sexual activity and pregnancy (Miller, 2002). This has mainly been attributed to parents having more permissive attitudes towards sex, and less parental supervision being provided.

Parental supervision and monitoring is perceived as an important factor that influences parent-child relationships. The relationship includes rules within the family structure such as mealtimes, where more communication can occur through shared activity (Borawski, Ievers-Landis, Lovegreen and Trapl, 2003). Lack of parental supervision has also been linked to other high-risk behaviours, such as alcohol and drug use which can increase the likelihood of unprotected sexual intercourse. Therefore, it has been suggested that parental supervision is an important aspect in reducing high-risk behaviours, since it provides a protective influence over young people's sexual behaviour (Miller, 2002). However, the social class of families has also been linked to parental monitoring and early sexual activity among young people (Valle, Torgerson, Roysamb, Klepp and Thelle, 2005). Lower social class has been linked with adolescent sexual activity, lack of parental monitoring, reduced future aspirations and poor academic achievement among young people (*ibid.*, 2005).

In Nepal, pupils have a strong belief that their parents are not a source of useful sexual health information, according to this study. This is because most parents feel too shy to discuss the issues and some think their children are not old enough to talk

to about sexual matters; others are embarrassed and simply say it is wrong to discuss such issues with family members (please see Section 4.10.2). Some parents do not discuss sexual matters with their children because they think talking about sexual issues will make children aware of sex and they might look for opportunities to experiment. Parents' perceptions could be the result of the strong traditional norms and values in the society.

Modernisation, or the progressive transition from traditional to a modern society, has broken down the old norms and values with no similar replacements (Regmi *et al.*, 2010). In many cases, where parents have discussed sexual matters with their children, mothers were found to be more active than fathers. The fathers' messages to their children were found to be more prohibitive rather than focusing on providing knowledge. Young people want information from reliable sources on biological and human aspects of developing sexuality. These include how to develop relations with the opposite sex, how to enjoy the process without having problems, and what to do if they do have a problem. Some adolescents in particular, want more information from their parents; however, their parents have not been very effective in discussing sexual issues with their children.

Young people want more time to be allocated in the school curriculum for sex education sessions than is currently in place (please see Section 4.9.1). They want more open discussions in school where they are allowed to share their opinions on certain issues instead of receiving information all the time. Another important aspect is that young people like anonymity and often find it easier to talk to people they do not know well or whom they are unlikely to see again (Ogle *et al.*, 2008). This could

be a visiting speaker in school sessions, or a health facilitator who responds to questions, so they do not have to worry about asking questions. They also find it easier to talk to people close to their own age, such as their peers.

During the questionnaire session, a sigh of relief was observed when it was explained to pupils that they need not put their names on the questionnaires. This was because adolescents wanted more freedom to express their views and make their own decisions, but they admitted that they need more guidance in decision-making skills. They want to be involved in making decisions pertaining to their lives instead of adults and society imposing their rules on them. Young people do not want family members simply telling them not to have boyfriends or girlfriends, or to abstain from sexual relationships (Goldman and Bradley, 2011). They want to discuss the pros and cons of different actions and the dangers of potential relationships with the opposite sex.

5.10 Young people's sexual health knowledge, behaviour and modernisation

Modernisation and globalisation influence young people's sexual attitudes and behaviour (Utomo and McDonald, 2008). In this study, the experimental schools were able to achieve a greater increase in knowledge of sexual health after the intervention (please see Section 4.7.2). This suggests that a youth-friendly modern approach to sex education could be the best option for providing sexual health information to young people; these findings are also in line with the study conducted by Rasamimari, Dancy, Talashek and Park (2007). This PhD study employed professional health facilitators and trained them systematically to apply a practical approach to delivering sex education. In this study, it was found that a majority of

young people liked the idea of using modern methods to deliver sex education in schools, such as role-play, group discussion, demonstration, quizzes and so on. They also believed that modern society is abandoning old values around sex and sexuality regardless of religion and ethnicity.

Modernisation is gradually replacing the outlook of the world that has dominated traditional societies. It is reflecting a shift in what people want out of life and a change in the norms governing politics, work, religion, family and sexual behaviour (Inglehart, 1997). In fact, all aspects of young people's lives in Nepal are now affected by the transition from a traditional agricultural economy to an industrial and wage-based economy (Regmi *et al.,* 2010). Furr (2005) made a clear argument that such modernisation typically equates with adopting features of Western cultural systems.

The core feature of modernisation is that it produces pervasive social and cultural consequences, from rising educational levels to changing gender roles (Inglehart and Baker, 2000). However, Furr (2005) strongly argued that modernisation refers not only to economic and technical development, but also to imposing foreign norms and values. It also forces cultural changes that re-orientate inter and intra-personal relations. It is now widely believed that mass media constitutes the primary medium for the transformation of the global images of people's lifestyles (Miles, 2000).

Many young people in Nepal exhibit a greater knowledge of the electronic media than their parents (Greene, 2001). Regardless of the actual time young people spend

watching television and using media, there can surely be no doubt that mass media plays an important role in structuring young people's lives. In developing countries, the introduction of Western media is usually put forward as a means of providing opportunities for improvements in the quality of life of the people (Furr, 2005). The process of modernisation and the increasing influence of Western cultural principles on young population groups are seen to be responsible for the breakdown of many traditional norms and values (Villarreal, 1998). The degree and intensity of the connections among different cultures and different world regions have accelerated dramatically because of advances in telecommunications and a rapid increase in economic and financial interdependence worldwide (Arnett, 2002).

In the past few years, Nepal has experienced rapid modernisation similar to other developing nations. Satellite television and Western music programmes have entered many Nepalese homes. There has also been an increase in education, which has included an especially strong dose of Western culture and technology (Greene, 2001). In reality, young people in Nepal live in a more Western influenced, technological world than their elders.

The last 40 years have seen a substantial change in the frequency of sexual experiences among young people (McCabe, 2000). At present, many young people are becoming more open and liberal in expressing their views and likewise, they are becoming more open and liberal in their partnership formation and sexual behaviour. They have developed their own popular culture in which they socialise with their peers and develop relationships.

It is clearly seen that many Nepalese young people have access to mobile phones, internet and satellite television which are accountable for promoting a liberal approach to sexual behaviour (Regmi *et al.*, 2010). An Indonesian study showed that liberal sexual behaviour and attitudes are strongly related to exposure to Western music (Utomo and McDonald, 2008). In Botswana, modernisation has an important influence in the disappearance of certain taboos such as initiation ceremonies (Villarreal, 1998). The increasing influence of modernisation has affected young people's attitudes towards sex and sexual behaviour (Zhang, Li, Li and Beck, 1999). In Malaysia, young people's pre-marital sexual activity has increased over the years and modernisation has been identified as a source of such changes (Lee *et al.*, 2006).

In Nepal, traditional culture is predominant and it holds conservative beliefs about religion, personal conduct and sexuality, which are similar to many other Asian countries. A study conducted in India showed that young people who had more traditional attitudes engaged less in sexual activities than those having more modern attitudes (Lakshmi, Gupta and Kumar, 2007). This could be due to the fact that young people are being exposed to new modern values, communication, transportation and peer relationships that place additional pressures on them to engage in sexual behaviour. In modern Nepal, there is a shift taking place toward a more liberal lifestyle, similar to that observed in most Westernised cultures (Carney and Madsen, 2009). This study supports the notion that facilities in modernisation such as transport, theatre, media, internet and mobile phones create more opportunities for young people to form partnerships.

There are a growing number of cyber-cafes, especially designed for young people in many areas of Nepal. These cafes may also encourage young people to view sexual content through the internet. It is evident that email, chat rooms and instant messaging have encouraged many young people to share aspects of their daily lives, talking about interests with like-minded people and keeping in touch with family and friends (McKenna, Green and Gleason, 2002). There is also a view that people form relationships with those whom they meet on the internet, especially with whom they interact with on a regular basis (*ibid.*, 2002). Greater anonymity may have contributed to the formation of partnerships through the internet.

A study carried out among Chinese high school students identified that the internet was a feasible and effective means to provide sex education and that it effectively increased pupils' Sexual and Reproductive Health (SRH) knowledge (Lou, Zhao, Gao and Shah, 2006). This could be because many adolescents believe that SRH education via the internet is private, convenient and user-friendly. These findings suggest that the internet can be used as an effective means of providing information on SRH issues to pupils.

5.11 Summary of the chapter

In summary, this study gives insight into the effectiveness of sexual health education in Nepalese secondary schools. The experimental schools demonstrated a significant increase in pupils' sexual health knowledge and understanding in 13 questionnaire variables out of 18. The effect size of the significance however, is small for all questionnaire variables ($r<0.3$) except for 'condom is used correctly and consistently for safer sex purpose' variable as a medium ($r>0.3$). Experimental schools also

showed a robust knowledge increase about preventive measures (ABC). On the other hand, the control schools demonstrated a significant increase in pupils' sexual health knowledge and understanding in only 5 questionnaire variables out of 18. Nevertheless, the effect size of the significance is small for all variables ($r<0.3$). Overall, it could be concluded that the experimental schools performed better in increasing pupils' sexual health knowledge and understanding compared to the control schools.

The FGDs with young people and KIIs with parents and school teachers provided more information about sexual health concerns of young people and issues about school sex education. The FGDs and KIIs identified the following key themes. These are the communication gap between parents and children, gender roles in Nepalese society, local culture, language and customs, poor knowledge about sexual health, the influence of peers and mass media, and modern globalised culture.

Pupils were more curious to know about sex and sexual health; however, they felt uncomfortable to ask any question to parents and teachers. Socio-cultural factors were the main barrier that prevented young people accessing sexual health information and services. The majority of young people argued that they were not involved in sexual activities. However, they agreed that the influence of local culture, mass media and peers could lead them to become involved in such activities. Most of the young people had poor knowledge about sexual and reproductive health. The participants preferred school-based sex education as the most appropriate way of delivering sexual health information to the young people. Use of media and internet

such as leaflets, posters, videos and computer were strongly advised while undertaking a modern sex education programme in school.

It is clear to see that effective school sex education is influenced by multiple factors as discussed above. Many of these factors have overlapped; however, it is imperative to view them separately in the context of young people's sexual health development. In this study sexual health knowledge means that the facts on sexual health are learned from sex education programmes, either at home, in school or in the community. Attitude is the drive to produce a response that is acceptable in the existing society. Young people acquire attitudes from the surrounding environment as they grow and these are not attributable to physical maturity (Keating, 1990). Young people acquire their sexual attitudes and values from the culture they grow up in and from social agents i.e. parents, peers, mass media.

There is a positive relationship between attitudes and behaviour, which could be affected by gaining new knowledge (*ibid.*, 1990). However, it is difficult to predict specific behaviour by knowing about attitudes. This is because some personal factors or motivations could cause behaviour suppression and in most cases young people face behavioural conflicts. Thus, it is important to consider the effectiveness of sex education in shaping the sexual behaviour of young people in their own settings. Therefore, the policy-makers and the programme designers need to be conscious of the changing times in society, the generation gap and cultural factors as well as the individual beliefs and values of young people.

CHAPTER-6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

This study evaluated the effectiveness of school-based sex education programmes used to promote young people's sexual health knowledge and understanding in Nepal. The study also met the following objectives (1) To describe the existing sexual health knowledge and understanding of young people, (2) To explore the effectiveness between sexual health knowledge and the delivery of sex education, and (3) To investigate the socio-cultural context of sexual health education and sexual relationships. The final objective was the recommendation of sex education teaching strategies (4) which is described in Section 6.2.

The main research question for this study was; Does a health facilitator-led sex education programme improve young people's sexual health knowledge and understanding compared to the conventional teacher-led sex education programme? Other sub-questions were; Do the media, custom and culture encourage young people to become involved in early sex? Are Sexual and Reproductive Health (SRH) services and information available to young people? Do young people access sexualised content from the internet and seek advice from peers for sexual health information? Do young people have poor knowledge and myths about sexual health and lack of skills in sexuality? Is the parental role an important factor in promoting young people's sexual health knowledge and behaviour? Is the partnership between schools and external agencies an important aspect in delivering sexual health services and information to Nepalese young people? Which teaching approach would

help young people to actively take part in classroom interaction? and Does the conventional sex education policy address the issues of modern young people's sexual health concerns?

This study rejected the null hypothesis since there was a significant difference in the post-intervention of control and experimental schools in the improvement of young people's sexual health knowledge and understanding. Pupils' knowledge and understanding to sexual health was significantly increased in the experimental schools after the intervention.

The findings of the study showed that the parental role was important in enhancing the sexual health knowledge of the pupil. Parents who are interested in discussing sexual health matters with their children should allow for a closer and more trusting relationship with them. Such relationships allow parents to influence their children's attitudes by forming beliefs and values concerning personal identity, relationships and intimacy (Ackard *et al.,* 2006).

Parents who talk to their children about sexual matters could be the main sex education providers for their children (O'Sullivan, Meyer-Bahlburg and Watkins, 2001). Preferably, mothers would be the main parent to discuss sexual matters with their children (*ibid.,* 2001). The reason is that mothers are usually the main care-givers and are responsible for supervising their children at mealtimes and after school. Nevertheless, many parents did not have adequate knowledge about sexual health, which caused them embarrassment in discussing sexual matters with their children (Walker, 2004; Walker *et al.,* 2010).

The quantitative result demonstrates that schools should coordinate with external agencies and mobilise health facilitators to enhance pupils' sexual health knowledge and understanding. The participants from the KIIs were also concerned about forming school-external agency partnerships to enhance pupils' sexual health knowledge. Health facilitators such as school nurses are considered appropriate people to deliver sex education in schools (Hayter, Piercy, Massey and Gregory, 2008). This assumption is based on the belief that the health facilitators are educationally prepared and have expertise and skills from a health background that would enable them to teach sex education to school pupils (McFadyen, 2004). However, it is important that they should be adequately trained to do the job so that they would be more likely to meet the pupils' needs (Jones, 1990).

The qualitative discussions shed light on the fact that sex education in school is boring which indicates that schools have failed to address young people's needs. The mainly didactic and biological Nepalese sex education curriculum has failed to meet pupils' needs for more applied knowledge and life skills. It is crucial to offer young people relevant sexual health knowledge on the assumption that they could choose less risky options (Evans and Tripp, 2006). Thus, it is not just what is being taught that is important, but how, in what setting and by whom. Teachers need to think about the welfare of young people and should move away from the didactic method of teaching. The pupil-teacher interactive learning process engages young people in structured activities. Therefore, schools should involve young people in the sex education programme and the teachers should use a more informal approach in delivering sex education.

This study identified that there was a huge communication gap about sex and sexuality issues within the family, despite much improvement in the mass media, education and communication in modern Nepal. Discussions about sexual issues do not always seem possible for the majority of the young people in Nepal. Some of the barriers are social and cultural norms, which discourage the discussion of sex and sexuality issues. Young people from the Brahman/Chhetri caste are more restricted in discussing sexual issues than other caste categories. In general, the majority of Nepalese young people feel embarrassed discussing their feelings about sex and sexuality. They very often fail to discuss such issues with their relatives and family members, since they do not want their parents to know that they are interested in sexual matters. In particular, young girls have little or no control over gaining knowledge on the use of condoms or other contraceptives. So, they normally suffer from coerced sex because of their poor negotiation skills.

Young people are aware of certain forms of protection from unwanted pregnancy and HIV/AIDS and STIs. However, this information is inadequate and they hold a number of misconceptions that are rarely addressed in school sex education programmes. Young Nepalese people still have many taboos and myths around menstruation and masturbation. Many young people believe that masturbation causes anxiety, depression and weakness. Many young girls still feel uncomfortable about sharing feelings of love and affection with their partners. However, there are some signals that they are becoming more open in such matters due to their access to mass media, such as movies and the internet. Young people generally receive

SRH information from educational institutions, mass media and health facilities; however, these services are limited in many areas.

Young people insisted that local cultural events could create opportunities for establishing sexual relationships. A few young people shared that they had had an opportunity to engage in pre-marital sexual relationships; this could be due to increased exposure to modern values around sex and sexuality, the role of the media, and peer pressure. They often engaged in such relationships without considering the risk of STIs and unwanted pregnancies. They learned many ideas about partnership formation from television, internet and movies; however, on most occasions, they depended on their friends for advice. Peers not only suggested relationships for their friends but also encouraged or influenced young people to establish sexual relationships.

The study identified that sexual health seeking behaviour among young people is very poor. Some young people were possibly engaged in unsafe sexual behaviour, and they were unaware about STIs and HIV infection. It is clear that there are many obstacles that inhibit young people from using sexual health services. They feel shy and uncomfortable getting condoms and other contraceptives from the local health centres. There are the chance that service providers could share the information with friends and families. This adds to the embarrassment, which often stops them from visiting the health centres.

Young people's attitudes towards sexual health knowledge and sexual behaviour have steadily changed with the modernisation of society and culture. Young

people now have a longer period between coming out of childhood and settling down and getting married. This study explored the fact that many young people lack useful sexual health information, while some are engaged in pre-marital sexual activities. Young people's sexual behaviours and their process of sexual negotiation in relation to the risks of pregnancy, STIs and HIV, are poorly understood. They feel too shy to use SRH services because of the lack of confidentiality, fair treatment, respect and a guarantee that their voices are heard. Understanding young people's sexual health knowledge and behaviour around sex and relationships is important to underpin better policy. Therefore, Nepalese schools need to use outside experts such as health facilitators to bring significant improvements in pupils' sexual health knowledge and understanding. Additionally, more rigorous research and appropriate interventions are required in order to effect change and bring about real improvement in young people's sexual health.

6.2 Recommendations

Young people require practical and useful information on sexual health. Individuals differ in regard to what mode of learning is active, influential and most effective for them. Therefore, schools should use a variety of participatory approach to deliver sex education such as group discussions, role-plays, quizzes and demonstrations. The details of these approaches should be described in the school curricula for sex education. Thus, irrespective of increasing academic standards the focus should be placed on the participatory approach to the quality of sex education.

Parents should listen and respond to the views of their children, which would strengthen their confidence and self-esteem. The parent-pupil communication gap

could be narrowed by good communication from both sides; however, parents should take the initiative. There is a strong role the government could play in involving young people in decision-making. This could be encouraging young people to speak out in school meetings, in seminars and in national conferences so that their voices are heard. In addition, student councils could be set up to inform others about what is happening in their schools. The council could provide feedback on school sex education and advise policy-makers on how to update the curricula according to pupils' requirements. This could directly affect sex education policies and programmes at the local and national levels. It is evident that encouraging and involving young people in policy development could make sex education more effective (Kirby *et al.,* 2007).

Partnership and collaboration is another important strategy that schools could adopt to enhance young people's sexual health knowledge. This could be accomplished by including relevant partners such as teachers, parents and young people and by including other professionals and local organisations. This partnership should aim to detail a more practical and pupil friendly participatory sex education approach and to inform the government about the changes required in the existing sex education curricula. The government takes action on public issues with the support of public policy by instituting laws, regulations, decisions or actions pertinent to the issue. Therefore, it is important to develop public policies where parents and health professionals are encouraged to be involved in the development of school-based sex education programmes (*ibid.*, 2007).

Sex education should involve gender equality in the classroom, which is an essential aspect of interpersonal and social relationships. There is a need for rigorous public debate for changing views towards gender, sexuality and sex education. Updated information on the global and national HIV/AIDS and STIs situation, teenage pregnancies and consequences, teenagers' sexual norms and behaviours and teenagers' cultures and perceptions are issues that must be discussed in the public forum. This information could be discussed in different ways, for example, through the internet, FM radio, television, pamphlets, posters, jingles, information sheets, discussions or seminars. Consistency of the information should be ensured so that all sources deliver the same messages to young people.

Young people need education that takes into consideration how emotions, sexual desires and information interact in various situations to influence decision-making and behaviour. Culturally appropriate sex education training to the health teachers should be provided to improve the delivery of sex education in schools. The psychological impact of the cultures and myths associated with sex and sexuality should be further explored. Community people, particularly mothers, should be better informed about menstruation as a natural phenomenon. In Nepal, there are many mothers' groups and these groups could function as forums for the dissemination of such information.

It should be ensured that accessible and affordable sexual health services are available for young people. This study indicated that services for adolescents are limited. Thus, widespread public information about adolescents' sexual health and available services needs to be advertised. However, it is essential to ensure that the

rights of young people are met when they receive information and services (Checkoway, Richards-Schuster, Abdullah, Aragon, Facio, Figueroa and White, 2003). A children's commissioner should be established to promote awareness of views and interests of all children in Nepal, in particular those whose voices are least likely to be heard, and to the people who make decisions about their lives. Some young people required friendly, confidential and non-judgemental services where they could discuss sexual health matters confidently. In Nepal, health centres have limited opening times, which hinder young people from receiving sexual health information and services. These health centres should be opened during weekends and holidays so that young people can visit the sexual health clinics.

6.3 Implications of the research

This study shows that trained health facilitators were more able to increase pupils' sexual health knowledge and to deal with misconceptions, while the conventional teachers were not. So, it could be stated that trained health facilitator-led sex education programmes in school are better than conventional teaching models. The increased level of sexual health knowledge and understanding suggests that this model could be applied in future teaching and learning processes. The low level of pupils' sexual health knowledge in the control schools could be linked to teachers' not having confidence to deliver sex education. This gives emphasis to on-going research concerning the content and delivery of sex education in school.

The age for sex education, the content of the materials and the teaching plan have shed light on how these programmes could be effectively implemented. A single class at the secondary level has a wide range of students, so health education

programme designers must develop appropriate pedagogy suitable to each age group. This is an important strategy to develop key health knowledge and skills of the pupils. For example, in the UK there are Personal, Social and Health Education (PSHE) frameworks which deal with encouraging pupils' voices through a multitude of pedagogic methods (DOE UK, 2011). Similarly, in the US, sex education in school provides adolescents with information to make informed choices about sexual health at a crucial period of their development (CDC, 2010).

The qualitative information on the pupils' social and biological influences and how these affect their sexual health attitudes and behaviours may be quite revealing. Adolescents' sexual and reproductive health behaviour and the influence of environmental factors would be interesting to study further. The UN Millennium Development Goals (MDGs) have also emphasised the importance of sexual and reproductive health across all eight MDGs. Parental opinion about young people's health education programmes and services would indicate the degree to which they support such programmes in the future.

The policies on school health education remain unclear in Nepal. Policy initiatives have a direct impact on adolescents' general health knowledge and behaviour. Due to unclear guidelines, the information that adolescents need in terms of health education is not being taught effectively in Nepalese schools. Nepal needs to place a priority on the future of young people and design policies that could promote knowledge and behaviour. This study has used the school setting to promote pupils' sexual health knowledge and understanding, which is very important for future research in Nepal.

This study allows for the possibility that teachers can modify and deliver sex education in schools via the normal curriculum.

6.4 Limitations of the research

Although this research has raised important issues that are related to sexual health education in Nepalese schools, limitations exist related to the findings. One limitation relates to the use of qualitative and quantitative research methods, providing data triangulation in the discussions. Triangulation occurred by using the qualitative method of FGDs and KIIs. The quantitative method used questionnaires to assess increases or decreases in sexual health knowledge when health facilitators had been mobilised in schools. The triangulation method has been criticised by other social researchers, since it does not reduce bias and does not improve validity (Fielding and Schreier, 2001). So, researchers are encouraged to select one appropriate method to measure and describe data. Nevertheless, the triangulation method used in this study was beneficial. In particular, it provided an innovative way to understand the phenomenon of sexual communications within families and friends and revealed unique findings in the under-researched area of sex education in Nepalese schools.

The context of the study was limited to the pupils' conceptualisation of sexual health knowledge and understanding. Participants were school children from 14 to 18 years of age and the sample was based on the schools that wished to take part in the study. The questionnaire items, which measured the sexual health knowledge of young people in Nepal, could contain more background information, thus making it easier to observe participants' social lives. This could provide more information about what

young people know about sexual health and what factors influence their knowledge and behaviour. The questionnaire piloting derived specific questions on sexual health knowledge and understanding; however further analysis could yield a robust set of questions.

Another limiting factor is that the main researcher did not monitor the quality of conventional health teachers. This could help to gain more insight about what knowledge and skills those teachers had about sexual health. A final limitation of the present study relates to how the findings of the analysis could be extended to the wider population. This is because the research was conducted in a small area of central Nepal; the applicability and relevance of the findings to other areas is uncertain.

6.5 Suggestions for future research

Any effort to conduct research on school sex education in Nepal is unlikely to be successful without the support of parents, teachers and local stakeholders such as social leaders, political leaders, women's activists and human rights activists. However, there is relatively little known about their views concerning sex education. Thus, further in-depth research is required to identify the views and issues of these different stakeholders. There is also a need for further research on the effectiveness of professional service provider organisations in order to explore the quality of the sexual and reproductive health services they provide.

It was helpful to conduct data analysis for each individual school. The present study showed an improvement in pupils' sexual health knowledge in the experimental

schools. However, these pupils could be exposed to more myths about sex and sexuality in the future, and so it would be appropriate to encourage parents to ask schools to organise seminars and training on sexual health. In general, it is important to include various stakeholders and to provide them with sex education in order to ensure successful implementation of the programmes.

This study also suggests that young people who have non-consensual sexual experiences have very few opportunities to obtain help and support. Further research is needed to explore young people's awareness of available service options, including to whom the victims may turn for counselling.

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APPENDICES

Appendix-1: Approval letter from Nepal Health Research Council (NHRC)

Nepal Health Research Council

Estd. 1991

NHRC

Ref. No. 993

April 5, 2011

Mr. Dev Raj Acharya
Principal Investigator
Aberystwyth University
School of Education and Lifelong Learning
Old College, Aberystwyth Wales, UK,

Subject: Amendment of the research proposal entitled **School-based Randomised Controlled Trial (RCT) of Peer - Led Sexual Health Education in Nepal**

Dear Mr. Acharya,

In reference to your letter, dated 22 March 2011 the meeting of the Ethical Review Board of Nepal Health Research Council held on 1st April 2011 has decided to provide approval of the requested amendment. After amendment, your research title will be **A School-based Randomised Controlled Trial (RCT) of Health Facilitator- Led Sexual Health Education in Nepal.**

Thanking You.

Sincerely Yours,

Dr. Shanker Pratap Singh
Member-Secretary

Tel.+977-1-4254220, 4227460, Fax: +977-1-4262469, RamShah Path, P.O. Box 7626, Kathmandu, Nepal.
Website: http://www.nhrc.org.np, Email : nhrc@nhrc.org.np

Appendix-2: Lesson plan

Lesson Plan-1

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Adolescence (physical and mental changes)

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- Describe the etymological meaning of adolescence
- Explain the various physical changes during adolescence
- Describe the various mental changes during adolescence.

Material required Newsprint papers, marker pens, colour pens, sellotape

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Introduction	10 minutes	Ask pupils what is meant by adolescence. Write down the responses on the newsprint paper and discuss them. Read the definition of adolescence from the school text book.	Listen and respond to the questions. Listen carefully and ask questions if unclear.
Physical changes during adolescence	15 minutes	Demonstrate with a picture of male and female and ask pupils to answer what develops during physical changes. Describe the various physical changes during adolescence. Differentiate between external and internal physical changes.	Listen carefully. Listen and ask questions if unclear. Pupils to discuss in a small group.
Mental changes	15 minutes	Ask pupils to answer what mental change takes place in adolescence.	Listen attentively and

during adolescence		Write down the responses on the newsprint paper and discuss them. Describe the various mental changes during adolescence. Differentiate between the positive and negative mental changes.	ask unclear question. Same as above. Pupils to discuss in a small group.
Summary	5 minutes Home work	Recap the lesson and ask pupils if they have any question. Ask pupils to make male and female body diagram and to name the organs that are physically changed during adolescence.	Pupils to respond. Pupils to show homework in the next lesson.

Lesson Plan-2

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Adolescence (emotional and social changes)

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- Describe the meaning of emotional change
- State the major emotional changes in adolescence
- Describe the meaning of social change
- State the important social changes during adolescence.

Material required Pictures from magazines, newsprint papers, marker pens, sellotape

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Introduction	10 minutes	Read the emotional and social changes meaning from the school text book. Ask pupils if they have any questions.	Listen and ask questions if unclear. Listen and discuss.
Emotional changes during adolescence	15 minutes	Collect some emotional pictures of adolescents from magazines. Show these pictures to the pupils. Ask what they see in the pictures. Ask two pupils to come forward, one being adult and another being adolescent. Perform a role-play about emotional changes (why the adolescent feels sad). Ask pupils what they observe in the role-play.	Pupils look at the pictures and respond to the question. Pupils come forward and perform the role-play as suggested. Pupils to discuss in small groups.
Social changes during adolescence	15 minutes	Show some pictures of adolescents who are engaged in social activities.	Look at the pictures and discuss.

		Ask pupils what they see in the picture. Ask pupils to write down other social activities for adolescents. Emphasise that learning several social activities keeps adolescents socially active.	Listen attentively and ask unclear question. Same as above.
Summary	5 minutes Homework	Recap the lesson and ask question around the learning outcome. Write four examples of emotional changes and four examples of social changes of adolescents.	Pupils to respond. Pupils to show homework in the next lesson.

Lesson Plan-3

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Needs and demands of adolescents

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- State the needs and demands of adolescents
- Explain the role of parents and teachers to provide guidance to the adolescents.

Material required Newspaper cuttings, newsprint papers, marker pens, sellotape, meta-cards

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Introduction	10 minutes	Write the needs and demands of adolescents on each meta-card. Distribute them to the pupils randomly. Ask pupils to read them loudly and stick on to the blackboard wall. Now, ask pupils if they know any further demands of adolescence. Describe how adolescence is a transitional period from childhood to adulthood.	Listen attentively and follow the procedure. Listen and discuss. Listen attentively.
Needs and demands of adolescence	30 minutes	Read an article on the increase in adolescent drug addiction from a newspaper cutting. Ask pupils why there is an increase in drug addiction, and what roles teachers and parents have to prevent this happening? Describe the needs and	Listen attentively and discuss in a small group. Pupils to discuss in a small group and response. Listen carefully

		demands of adolescence. Explain that it is the duty of teachers and parents to identify the needs of adolescents.	and ask question if unclear.
Summary	5 minutes Homework	Recap the lesson and ask question around the learning outcome. Give one example of adolescent needs and demands as seen in your community.	Pupils to response. Pupils to show homework in the next lesson.

Lesson Plan-4

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Problems of adolescence

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- State the main problems of adolescence
- Describe the reasons for adolescents' problem

Material required Newsprint papers, marker pens, colour pens, sellotape, flip chart

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Problems of adolescence	15 minutes	Ask pupils to identify adolescents' problems. Write their responses in the newsprint paper and discuss. Provide factual information given in the school text book. Mention that adolescents suffer from unnecessary mental tension because their mental development is very fragile and unstable.	Pupils listen and respond to the question. Listen carefully.
Reasons for adolescent problem	15 minutes	Ask pupils to discuss the reasons for adolescents' problems. Explain that hormonal changes in adolescents cause changes in their emotions and feelings. Show a flip chart about an adolescent who had tobacco chewing habit and how his teacher helped him to abandon this habit. Now ask pupils why this adolescent adopted that habit. What was the motivating factor to change that habit?	Listen and discuss in a group. Listen carefully. Listen, discuss and ask questions if unclear.
Summary	5 minutes	Recap the lesson and ask question around the learning outcome.	Pupils to response.

	Homework	List any four problems of adolescence.	Show homework in the next lesson.

Lesson Plan-5

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Management of adolescents' problem

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- Explain the term management
- Describe the rational for management of the problems of adolescence
- Name the important techniques of the management of adolescent problem.

Material required News article, newsprint papers, marker pens, colour pens, sellotape

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Introduction	10 minutes	Ask pupils to describe the meaning of management. Write down their responses on the newsprint paper and discuss them. Explain the meaning of management from the school text book.	Listen and respond to the question. Listen attentively and ask questions if unclear.
Rational for management	10 minutes	Ask pupils why management of the adolescent problem is necessary. Read an article on the increase of smoking in adolescents from a newspaper cutting. Ask pupils how these kinds of problems could be addressed. Emphasise that the problems of adolescents, if not managed, could affect society and the	Listen and respond to the question. Listen carefully and discuss in a small group. Listen attentively.

		country.	
Managing adolescent problem	10 minutes	Ask pupils how to manage adolescent problems. Ask two pupils to volunteer. Perform a role-play to provide counselling to an adolescent with unsafe sexual behaviour. Now ask pupils: What do you observe in the role-play? What is the role of the counsellor? What is the response of the adolescent? Explain that counselling, participation in creative activities and advice on safer sex are important techniques to manage adolescents' problem	Listen attentively and discuss in a small group. Pupils perform a role-play. Listen attentively and discuss the question. Listen attentively
Summary	5 minutes Homework	Recap the lesson and ask question around the learning outcome. Write down at least two techniques to manage adolescents' problems.	Pupils to response. Show homework in the next lesson.

Lesson Plan-6

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Sex education

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- Explain the meaning of sex education
- Describe the importance of sex education
- State the mainstreaming of sex education in global and national level.

Material required News article, meta-cards, newsprint papers, marker pens, colour pens, sellotape

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Introduction	10 minutes	Ask pupils to write down the meaning of sex education in meta-card. Ask to form a group of four pupils and make one definition of sex education. Collect the meta-cards and read one-by-one. Explain the meaning of sex education and discuss with pupils.	Pupils listen and follow the instructions. Same as above. Listen attentively and ask question.
Importance of sex education	15 minutes	Why is sex education important? Ask the pupils. Write the responses in the newsprint and discuss them. Mention the importance of sex education written on the meta-card and discuss them.	Listen and respond to the question. Listen carefully and ask questions if unclear.
Mainstream of sex education	15 minutes	Provide an overview of countries adopting school sex education using a world map.	Listen attentively and ask questions if unclear.

		Read article on the principle of ICPD 1994*, especially no. 8, 9, 10 and 11 that highlight the importance of sex education and human right. Share MDG**, especially goal no. 6 that that highlights the promotion of sex education, halting the spread of HIV/AIDS and the use of contraception.	Same as above. Same as above.
Summary	5 minutes Homework	Recap the lesson and ask question around the learning outcome. What is sex education?	Pupils to respond. Pupils to show homework in the next lesson.

*International Conference on Population and Development, 1994. Available from: **(**http://www.unfpa.org/webdav/site/global/shared/documents/publications/2004/icpd_eng.pdf**,** accessed on 12 March 2011).

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Lesson Plan-7

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Sex and sexuality

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- Explain the meaning of sexuality
- Identify the difference between sex and sexuality
- Describe the values, attitudes and ideals about love and relationships.

Material required Meta-cards, newsprint papers, marker pens, colour pens, sellotape

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Introduction	10 minutes	Ask pupils what they understand by sexuality. Write down the responses on the newsprint paper and discuss them. Explain that sexuality affects who we are and how we express ourselves. Peoples' sexuality can be influenced by their family, culture, religion, media, friends and experiences.	Listen attentively and respond to the question. Listen and ask questions if unclear
Difference between sex and sexuality	15 minutes	Write the word "SEX" on a piece of newsprint paper. Ask the pupils to share any thoughts ideas or feelings that come to their mind. Record the responses on the newsprint paper and discuss in the group. Clarify that 'sex' refers to whether or not a person is male or female. Sex is also commonly used to refer to sexual intercourse. 'Sexuality' refers to the total expression of who	Pupils listen and discuss in a small group. Listen attentively and ask questions if unclear

		you are as a human being, your femaleness or your maleness.	
Love and relationships	15 minutes	Ask pupils what they know about love and relationships. Write down those responses in the newsprint paper and discuss them. Talk about sexual and non-sexual relationships. Ask pupils to write at least two ways to express their sexuality without having sex. Allow discussions to begin to understand their own sexuality, sexual experiences and relationships that do not involve intercourse.	Listen and discuss the responses. Listen attentively and discuss in a small group. Listen and take part in the discussion.
Summary	5 minutes Homework	Recap the lesson and ask question around the learning outcome. What is the difference between sex and sexuality?	Pupils to response. Show homework in the next lesson.

Lesson Plan-8

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Myths and facts about sexual risks

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- Describe the meaning of sexual risks
- Identify the myths and facts of sexual risks

Material required Sexual risks: myths or facts sheet*, newsprint papers, marker pens, colour pens, sellotape

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Introduction	10 minutes	Ask pupils what they understand by sexual risks. Record the responses on newsprint paper and discuss them.	Pupils listen attentively and respond to the question.
Myths and facts about sexual risks	30 minutes	Tell pupils that they are going to play a game to find out how much they know about the risks associated with sexual activity. Divide the class into two groups. Each group draws statements from the container, about 'sexual risks: myths or facts sheet'. Groups must decide whether each statement is a fact or a myth. Groups receive one point for each correct answer. If the group can explain why a statement is true or a myth, they receive bonus points. After completion of the game ask the groups: What have you heard about risky and	Pupils listen attentively. Pupils listen attentively and play the game. Pupils listen attentively and respond to the

		not risky sexual behaviour? Do young people protect themselves and their partners from pregnancy and/or STI/HIV every time they have intercourse? Why would young people risk having unprotected sexual intercourse?	questions.
Summary	5 minutes Homework	Recap the lesson and ask questions around the learning outcome. Write down at least two facts about sexual risks.	Pupils to respond. Show homework in the next lesson.

*Sexual risks: myth or fact.

Available from:

http://www.advocatesforyouth.org/storage/advfy/documents/mythfact.pdf), accessed on 23 March 2011.

Lesson Plan-9

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Negotiating sexual risk reduction

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- Describe the major risks associated with sexual activities
- Identify the effective ways to communicate about sexual risk reduction.

Material required Newspaper article, meta-cards, newsprint paper, marker pens, colour pens, sellotape

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Introduction	10 minutes	Read an article on the increase in condom use among young people from a newspaper cutting. Now ask pupils the reasons behind such increase might be.	Listen attentively, respond the questions and discuss them.
Communicate about sexual risk reduction	30 minutes	Ask pupils to form three groups. Each group receive a packet of three different sets of meta-cards (abstinence, be faithful to sex partner and condom use) and share with them. Ask groups to perform three role-play presentations, one for each situation as written on their meta-cards. In each role-play, one actor to convince the other actor to agree to practice the assigned method of risk reduction. While two members act, the other members in that group comment and suggest on whether	Pupils listen attentively. Pupils listen attentively and perform the role-play.

		the approach is convincing. After the role-play, ask the pupils these questions-how realistic was this role-play? Why? Which character was more convincing? Why? What other approach do you think might have been more effective? What are effective ways for a couple to discuss abstinence? Being faithful to the sex partner? The use of condoms?	Pupils listen attentively and respond to all these questions.
Summary	5 minutes Homework	Recap the lesson and ask question around the learning outcome. What are the three ways to communicate about sexual risk reduction?	Pupils to respond. Show homework in the next lesson.

Lesson Plan-10

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Facts about HIV/AIDS

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- Describe the meaning of HIV/AIDS
- Explain the major transmission route of HIV/AIDS
- Mention the preventive measures of HIV/AIDS
- State the ways HIV makes someone ill

Material required Flip chart, newsprint papers, marker pens, colour pens, sellotape

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Introduction	10 minutes	Ask pupils about the meaning of HIV/AIDS. Write the responses in the newsprint paper. Discuss the responses and explain the meaning of HIV/AIDS.	Pupils listen and respond to the question. Listen and ask questions if unclear.
Transmission of HIV/AIDS	10 minutes	Form four groups of pupils and provide them with a flip chart that shows how HIV/AIDS is transmitted. Show the flip chart page-by-page how HIV/AIDS is transmitted.	Pupils listen and form the groups. Pupils listen attentively and ask any unclear question.
Prevention of HIV/AIDS	10 minutes	Continue showing the same flip chart on preventive measures of HIV/AIDS.	Same as above.
How HIV makes someone ill	10 minutes	Explain that HIV slowly weakens the immune system, which is the body's defence against infection and illness. Show the flip chart that shows	Same as above. Same as above

		how these immune systems are weakened by HIV.	
Summary	5 minutes Homework	Recap the lesson and ask question around the learning outcome. Write down the measures that prevent HIV/AIDS.	Pupils to response. Show homework in the next lesson.

Lesson Plan-11

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Facts about STIs (Sexually Transmitted Infections)

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- Describe the meaning of STIs
- Describe the major types of STIs
- Explain the transmission and prevention of STIs.

Material required STIs slide pictures, STI facts: true or false*, newsprint papers, marker pens, colour pens, sellotape

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Introduction	10 minutes	Ask pupils what is the meaning of STIs. Write the responses in the newsprint paper. Discuss the responses and explain the meaning of STIs.	Listen, and discuss the responses.
Types of STIs	10 minutes	Make four sets of different slide pictures of STIs. Form four groups of pupils. Provide each group with a set of STIs slide picture. Ask them to take a look and pass the set to other group after they finish. Ask if they have any question.	Pupils listen and form the groups. Pupils look at the pictures and follow the instructions.
Transmission and prevention of STIs	20 minutes	Tell pupils that they are going to play a quiz game on STIs. Divide them into two groups. Each group draws statements from the container about 'STI facts: true or false'. Groups must decide whether each statement is true or false. Groups receive one point for each correct answer. If the group can explain why a statement is	Form the groups. Pupils listen attentively and ask any unclear question.

		true or false, they receive bonus points. After completion of the quiz ask the groups: What are the signs and symptoms of STIs? What are the two most effective ways to avoid STIs? What three things should you do if you are worried that you have been infected with STIs? What would be most difficult about having STIs?	Pupils listen attentively and answer the question
Summary	5 minutes Homework	Recap the lesson and ask question around the learning outcome. Write down at least two types of STIs.	Pupils to respond. Show homework in the next lesson.

*STIs facts: true or false. Available from: (http://www.advocatesforyouth.org/storage/advfy/documents/stifacts.pdf), accessed on 07 April 2011

Lesson Plan-12

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Facts about condom use and sexual health services

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- Describe the meaning of condom
- State the process of proper condom use
- Explain the advantages of condom use
- Name the sexual health service provider.

Material required Dildo (penile model), condoms, meta-cards, newsprint papers, marker pens, colour pens, sellotape

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Introduction	10 minutes	Ask pupils whether they have seen condom? Ask what is meant by condom and what it is made of? Write the responses on the newsprint paper. Discuss the responses and explain the meaning of condom. Explain that HIV cannot leak through latex condoms and condoms are tested thoroughly and probably will not break with proper use.	Listen and respond to the questions. Same as above. Listen and ask questions if unclear.
Proper use of condom	20 minutes	Tell pupils that each step of condom use is written on each one meta-card. Now ask some pupils to volunteer and to take each piece of written meta-card. Ask each of them to read it and display it to the group. Tell these volunteers to form a line in the correct order so their meta-card describes step-by-step use of condom. Ask the rest of the pupils to review the final order to see if it is correct. Now	Pupils listen attentively. Volunteers take part and other pupils watch the process.

		demonstrate the proper condom use with a penile model. After completion of the condom use demonstration ask the groups: How easy or difficult was it to demonstrate condom use? How do men feel when they use condoms? What about women? Do people feel differently about seeing men and women having condoms? Is one kind of condom better than another? Explain the advantages of condom use.	Pupils listen and respond to the questions. Listen and ask questions if unclear.
Summary	5 minutes Homework	Recap the lesson and ask question around the learning outcome. What are the processes of condom use?	Pupils to respond. Show homework in the next lesson.

Lesson Plan-13

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Reproductive system (male)

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- Describe the importance of knowledge about male reproductive system
- State the names of male reproductive system
- Explain the functions of male reproductive organs

Material required Brochures, meta-cards, newsprint papers, marker pens, colour pens, sellotape

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Introduction	10 minutes	Read brochure on importance of male reproductive system. Ask what is meant by male reproductive system? Write the responses in the newsprint paper. Discuss the responses and explain the meaning of male reproductive system.	Listen and respond to the question. Listen and discuss.
Male reproductive organs	30 minutes	Write down the name of each male reproductive organ on each small meta-card. Stick the male reproductive poster in the black board wall. Distribute the written meta-cards randomly to the pupils. Ask the pupils to come up with meta-card, read it and paste it in the appropriate place in the poster. Ask the remaining pupils to confer with his/her judgement. Health facilitators stick the name in correct place, if necessary.	Pupils listen attentively and follow the instructions. Same as above.

		Now ask pupils: How do they feel about placing the names on the poster? Do they find the organs the same as they thought before? If not, what are they looking for that they cannot find? How do boys and girls feel when they see this poster? Do they feel differently? Health facilitators describe the functions of the male reproductive organs written in the newsprint paper.	Pupils listen and respond to the questions. Listen and ask questions if unclear.
Summary	5 minutes Homework	Recap the lesson and ask questions around the learning outcome. Write down the name and functions of two male reproductive organs?	Pupils to respond. Show homework in the next lesson.

Lesson Plan-14

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Reproductive system (female)

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- Describe the importance of knowledge about female reproductive system
- State the names of female reproductive system
- Explain the functions of female reproductive organs

Material required Brochures, meta-cards, newsprint papers, marker pens, colour pens, sellotape

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Introduction	10 minutes	Read out the brochure on the importance of female reproductive system. Now ask what is meant by the female reproductive system. Write the responses on the newsprint paper. Discuss the responses and explain the meaning of the female reproductive system.	Pupils listen and respond to the question. Listen and ask questions if unclear.
Female reproductive organs	30 minutes	Write down the name of each female reproductive organ on each small meta-card. Stick the female reproductive poster in the black board wall. Distribute the written meta-card randomly to the pupils. Ask the pupils to come up with meta-card, read it and paste it in the appropriate place in the poster. Ask the remaining pupils to confer with his/her judgement. Health facilitators stick the name	Pupils listen attentively and follow the instructions. Same as above. Same as above.

		in correct place, if necessary. Now ask pupils: How do they feel about placing the names on the poster? Did they find the organs the same as they thought before? If not, what are they looking for that they cannot find? How do boys and girls feel when they see this poster? Do they feel differently? Health facilitators describe the functions of the female reproductive organs written in the newsprint paper.	Pupils listen and respond to the questions. Listen and ask questions if unclear.
Summary	5 minutes Homework	Recap the lesson and ask questions around the learning outcome. Write down the names and functions of two female reproductive organs.	Pupils to respond. Show homework in the next lesson.

Lesson Plan-15

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Menstruation, pregnancy and childbirth

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- Explain the meaning of menstruation and pregnancy
- State the factors to be considered during menstruation
- Describe the stages of conception to child birth

Material required Menstrual cycle poster, slide picture, meta-cards, newsprint papers, marker pens, colour pens, sellotape

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Introduction	10 minutes	Show a menstrual cycle poster and describe the meaning of menstruation. Explain that the menstruation cycle is under the control of the nervous system. The cycle is of 28 days in an average though it varies slightly according to the health conditions of female. Describe the meaning of conception, pregnancy and child birth.	Listen and ask questions if unclear. Same as above. Same as above.
Factors to consider during menstruation	15 minutes	Write down each fact about 'considerations during menstruation' on each piece of meta-card. Distribute the meta-card to pupils randomly. Ask the pupils to read the meta-card and stick it on the blackboard wall. Ask pupils if they have any questions. Write the questions on the newsprint paper and discuss	Pupils listen attentively and follow the instructions. Listen and ask questions if unclear.

		them.	
Conception to child birth	15 minutes	A set of 'conception to child birth' slide pictures are distributed randomly to the pupils. Pupils are asked to work together to make an arrangement of picture in a chronological order and explain it. The rest of the pupils ask clarifying questions to them. Continue to discussion and respond the questions.	Pupils follow the instructions. Pupils listen and follow the instructions. Ask unclear question.
Summary	5 minutes Homework	Recap the lesson and ask question around the learning outcome. What is the time period considered for pregnancy?	Pupils to respond. Show homework in the next lesson.

Lesson Plan-16

Date

Time period 45 minutes

Age of the pupils 14-18 years

Subject Health Population and Environment Education

Topic Revision of the lessons

Year 9

Learning outcome By the end of the lesson, pupils will be able to:

- Describe the topics covered in the intervention programme.
- Identify the importance of sex education programme
- State the preventive measure to HIV/AIDS, STIs and pregnancy

Material required Meta-cards, newsprint papers, marker pens, colour pens, sellotape

Presentation

Content	**Time**	**Health facilitator's activities**	**Pupils' activities**
Revision of the lessons	15 minutes	Ask to form three groups of pupils mixed up of male and female. Each group is assigned a task and asked to work in a group: Group one - Describe the topics covered in the intervention programme. Group two - Identify the importance of sex education programme. Group three - State the preventive measure to HIV/AIDS, STIs and pregnancy.	Pupils follow the instructions. Same as above.
Group presentations	25 minutes	Ask each group to come forward and give the presentation of the assignment. The rest of the pupil asks any unclear questions and discuss them. The process continues until the last group gives their presentation.	Pupils listen and follow the instructions.
Summary	5 minutes	Recap the lesson and thank you to all for their active participation.	Listen attentively.

Appendix-3: Main intervention questionnaire

ID:…….

सर्वेक्षण प्रश्नावली
(SURVEY QUESTIONNAIRE)

स्वास्थ्य सहजकर्ताको अगुवाइमा विद्यालयमा पढाइने यौन स्वास्थ्य शिक्षा पाठ्यक्रमको अध्ययन कार्यक्रम

A school-based randomised controlled trial (RCT) of health facilitator-led sexual health education in Nepal

देव राज आचार्य, विद्यावारिधि विद्यार्थी
आबरिष्टविथ विश्वविद्यालय
स्कूल अफ एजुकेशन एण्ड लाईफलङ्ग लर्निङ्ग
ओल्ड कलेज, किङ्ग स्ट्रिट
यूनाईटेड किङ्गडम
इमेलः dra09@aber.ac.uk

Dev Raj Acharya, PhD student
Aberystwyth University
School of Education & Lifelong Learning
United Kingdom
Email: dra09@aber.ac.uk

यो प्रश्नावली माध्यमिक विद्यालयमा अध्ययनरत किशोर/किशोरी विद्यार्थीहरुको यौन तथा प्रजनन् स्वास्थ्य शिक्षामा रहेको धारणा, दृष्टिकोण र ज्ञानसँग सम्बन्धित छ । प्रश्नावलीको पहिलो खण्डले तपाइको चिनारीको पृष्ठभूमिस दोस्रो खण्डले यौन तथा प्रजनन् स्वास्थ्य प्रणाली बारे जानकारीको श्रोतस तेस्रो खण्डले यौन तथा प्रजनन् स्वास्थ्यबारे किशोर/किशोरी विद्यार्थीहरुको चेतनाको स्तरस चौथो खण्डले यौन स्वास्थ्य प्रतिको धारणा/बुझाइ र पाँचौं खण्डले यौन स्वास्थ्य प्रतिको मूल्य मान्यता र विश्वासको बारेमा जानकारी संकलन गर्दछ ।

गोपनियता: यो सर्वेक्षणमा तपाइको सहभागितालाई गोप्य राखिने छ र तपाई कुनै प्रश्नको उत्तर दिन चाहनुहुन्न भने उक्त प्रश्नलाई छोडेर अर्को प्रश्नमा जान सक्नु हुनेछ ।

यो प्रश्नावली भरेर फिर्ता गर्नु भएकोमा तपाइलाई धेरै धन्यवाद् ।

This set of questions is about young people's knowledge and attitudes towards sexual and reproductive health education in secondary schools. The first section of the questionnaire asks you to provide general information about your background, followed by sources of information about sexual and reproductive health system in section two, sexual and reproductive health awareness level in section three, sexual health knowledge and understanding in section four, and sexual health norms and beliefs in section five.

Confidentiality: Your participation in this survey is voluntary and all answers will be kept confidential. If there is a question that you do not wish to answer, you can skip it and move on to the next question.

Thank you for returning your completed questionnaire.

खण्ड एक: पृष्ठभूमि जानकारी

SECTION 1: BACKGROUND INFORMATION

चिन्ह लगाउनुहोला । Please tick the box.

प्र.१ **लिंग** (Gender)

पुरुष (Male) ☐ महिला (Female) ☐

प्र.२ **उमेर** (Age)

.....वर्ष (Year)

प्र.३ **तपाई कति कक्षामा पढ्नु हुन्छ ?** (Which class do you study?)

कक्षा (Class).....

प्र.४ **तपाइको जात के हो ?** (What is your ethnicity?)

बाहुन/क्षेत्री (Brahmans/Chhetri) ☐

मगर/गुरुङ्ग/राई/लिम्बु (Magar/Gurung/Rai/Limbu) ☐

नेवार (Newar) ☐

तामाङ्ग (Tamang) ☐

मधेसी (Madhesi) ☐

अन्य (Others) ☐

प्र.५ **तपाईको बुवाको शैक्षिक योग्यता कति छ ?** (What is your father's educational status?)

अशिक्षित (Illiterate) ☐

अनौपचारिक शिक्षा (Informal/Non formal) ☐

प्राथमिक शिक्षा (Primary Education) ☐

माध्यमिक शिक्षा (Secondary Education) ☐

एसएलसी (SLC) ☐

कलेज/विश्वविद्यालय (College/University) ☐

प्र.६ **तपाईको आमाको शैक्षिक योग्यता कति छ ?** (What is your mother's educational status?)

अशिक्षित (Illiterate) ☐

अनौपचारिक शिक्षा (Informal/Non formal) ☐

प्राथमिक शिक्षा (Primary Education) ☐

माध्यमिक शिक्षा (Secondary Education) ☐

एसएलसी (SLC) ☐

कलेज/विश्वविद्यालय (College/University) ☐

खण्ड २: जानकारीका श्रोतहरु

SECTION 2: SOURCES OF SEXUAL HEALTH INFORMATION

चिन्ह लगाउनुहोला। Please tick the box.

प्र.७ साथीहरुले यौन तथा प्रजनन् स्वास्थ्य वारे जानकारी दिन्छन।

(Friends/peers)

☐ पुर्ण असहमत (Strongly disagree) ☐ असहमत (Disagree) ☐ न सहमत/न असहमत (Undecided) ☐ सहमत (Agree) ☐ पुर्ण सहमत (Strongly agree)

प्र.८ आफ्नै उमेरका नातेदारहरुले (भाईबहिनीहरु) यौन स्वास्थ्य वारे जानकारी दिन्छन।

(Relatives of a similar age such as brothers/sisters/cousins)

☐ पुर्ण सहमत (Strongly agree) ☐ सहमत (Agree) ☐ न सहमत/न असहमत (Undecided) ☐ असहमत (Disagree) ☐ पुर्ण असहमत (Strongly disagree)

प्र.९ स्वास्थ्य कार्यकर्ता (डाक्टर/नर्स) वाट यौन स्वास्थ्य वारे जानकारी पाइन्छ।

(Health professional such as doctor/nurse)

☐ पुर्ण असहमत (Strongly disagree) ☐ असहमत (Disagree) ☐ न सहमत/न असहमत (Undecided) ☐ सहमत (Agree) ☐ पुर्ण सहमत (Strongly agree)

प्र.१० वाहिर वाट आउने स्वास्थ्य सहजकर्ता वाट यौन स्वास्थ्य वारे जानकारी पाइन्छ।

(Visitor from outside such as health facilitator)

☐ पुर्ण असहमत (Strongly disagree) ☐ असहमत (Disagree) ☐ न सहमत/न असहमत (Undecided) ☐ सहमत (Agree) ☐ पुर्ण सहमत (Strongly agree)

प्र.११ **युवा कार्यकताले यौन तथा प्रजनन् स्वास्थ्य वारे जानकारी दिन्छन ।**

(Youth volunteer worker)

☐ ☐ ☐ ☐ ☐

पुर्ण सहमत सहमत न सहमत/न असहमत असहमत पुर्ण असहमत

(Strongly agree) (Agree) (Undecided) (Disagree) (Strongly disagree)

प्र.१२ **औषधी पसले वाट यौन स्वास्थ्य वारे जानकारी पाइन्छ ।**

(Chemist/pharmacy)

☐ ☐ ☐ ☐ ☐

पुर्ण असहमत असहमत न सहमत/न असहमत सहमत पुर्ण सहमत

(Strongly disagree) (Disagree) (Undecided) (Agree) (Strongly agree)

खण्ड ३: यौन तथा प्रजनन् स्वास्थ्यबारे चेतनाको स्तर

SECTION 3: SEXUAL HEALTH AWARENESS LEVEL

चिन्ह लगाउनुहोला । Please tick the box.

प्र.१३ **अभिभावकले यौन स्वास्थ्यको विषयमा बच्चा लाई दिने परामर्श महत्वपुर्ण हुन्छ ।**

(Parental counselling is important for sexual health development)

☐ ☐ ☐ ☐ ☐

पुर्ण सहमत सहमत न सहमत/न असहमत असहमत पुर्ण असहमत

(Strongly agree) (Agree) (Undecided) (Disagree) (Strongly disagree)

प्र.१४ **अण्डसेचन एउटा प्रक्रिया हो जुन फेलोपियन ट्यूबमा हुन्छ ।**

(Fertilisation is a natural process that takes place in fallopian tube)

☐ ☐ ☐ ☐ ☐

पुर्ण असहमत असहमत न सहमत/न असहमत सहमत पुर्ण सहमत

(Strongly disagree) (Disagree) (Undecided) (Agree) (Strongly agree)

प्र.१५ **शारीरिक परिवर्तनकोवेला किशोर/किशोरीहरु आफ्नो उचाई बढेको महशुस गर्छन्।**

(Adolescent experience growth of height during physical change)

☐ ☐ ☐ ☐ ☐

पुर्ण सहमत सहमत न सहमत/न असहमत असहमत पुर्ण असहमत

(Strongly agree) (Agree) (Undecided) (Disagree) (Strongly disagree)

प्र.१६ **यौन साथीसँग सुरक्षित यौन सम्पर्क गर्नु परेमा कण्डमको सहि र नियमित प्रयोग गरिन्छ ।**
(Condom is used correctly and consistently for safer sex purpose)

☐ ☐ ☐ ☐ ☐

पुर्ण असहमत असहमत न सहमत/न असहमत सहमत पुर्ण सहमत

(Strongly disagree) (Disagree) (Undecided) (Agree) (Strongly agree)

खण्ड ४: यौन तथा प्रजनन् स्वास्थ्य बारेको ज्ञान र बुझाइ

SECTION 4: LEVEL OF KNOWLEDGE AND UNDERSTANDING

चिन्ह लगाउनुहोला । Please tick the box.

प्र.१७ **असुरक्षित यौन सर्म्पक अहिलेको किशोर/किशोरीहरुको प्रमुख समस्याहरु हुन् ।**
(Unsafe sexual behaviour is adolescent's current problem)

☐ ☐ ☐ ☐ ☐

पुर्ण असहमत असहमत न सहमत/न असहमत सहमत पुर्ण सहमत

(Strongly disagree) (Disagree) (Undecided) (Agree) (Strongly agree)

प्र.१८ **यौनरोगले मानिसलाइ बाँझो बनाउन सक्छ ।**
(Sexually Transmitted Infections may cause infertility)

☐ ☐ ☐ ☐ ☐

पुर्ण सहमत सहमत न सहमत/न असहमत असहमत पुर्ण असहमत

(Strongly agree) (Agree) (Undecided) (Disagree) (Strongly disagree)

प्र.१९ **भावनात्मक परिवर्तनका कारण किशोर/किशोरीहरुमा एक्लोपनाको महशुस हुन्छ ।**
(Loneliness occurs as a result of emotional changes)

☐ ☐ ☐ ☐ ☐

पुर्ण असहमत असहमत न सहमत/न असहमत सहमत पुर्ण सहमत

(Strongly disagree) (Disagree) (Undecided) (Agree) (Strongly agree)

प्र.२० **एकजना मात्रै यौन साथीसँग यौन सम्पर्क गर्नु ठीक हो ।**
(It is better to have only one sex partner for sexual relationship)

☐ ☐ ☐ ☐ ☐

पुर्ण असहमत असहमत न सहमत/न असहमत सहमत पुर्ण सहमत

(Strongly disagree) (Disagree) (Undecided) (Agree) (Strongly agree)

खण्ड पाँच : यौन सम्बन्धि मूल्यमान्यता र विश्वास

SECTION 5: SEXUAL HEALTH NORMS AND BELIEFS

चिन्ह लगाउनुहोला । **Please tick the box.**

प्र.२१ ब्रह्मचार्य भनेको यौन सम्पर्क नगर्नु हो ।

(I believe in abstinence which means to avoid sex)

☐ ☐ ☐ ☐ ☐

पुर्ण सहमत सहमत न सहमत/न असहमत असहमत पुर्ण असहमत

(Strongly agree) (Agree) (Undecided) (Disagree) (Strongly disagree)

प्र.२२ रजश्वलाको बेला महिलाहरुलाई अछुत मान्नु पर्छ ।

(Females should be considered untouchable during menstruation)

☐ ☐ ☐ ☐ ☐

पुर्ण असहमत असहमत न सहमत/न असहमत सहमत पुर्ण सहमत

(Strongly disagree) (Disagree) (Undecided) (Agree) (Strongly agree)

प्र.२३ विहे अघि केटीले यौन सम्पर्क राखी भने उसको ईज्जत र मर्यादा गुम्छ ।

(A girl loses her dignity if she has sex before marriage)

☐ ☐ ☐ ☐ ☐

पुर्ण सहमत सहमत न सहमत/न असहमत असहमत पुर्ण असहमत

(Strongly agree) (Agree) (Undecided) (Disagree) (Strongly disagree)

प्र.२४ यदि केटालाई यौन रोग छ भने केटीले कण्डम लगाउन सल्लाह दिन सक्छिन् ।

(A girl can suggest a boy uses a condom if he suffers from an STI)

☐ ☐ ☐ ☐ ☐

पुर्ण असहमत असहमत न सहमत/न असहमत सहमत पुर्ण सहमत

(Strongly disagree) (Disagree) (Undecided) (Agree) (Strongly agree)

****

अनुगमन मंजुरी-पत्र

विद्यालयमा पढाइने यौन तथा प्रजनन् स्वास्थ्य शिक्षा सेसनको प्रभावकारित कस्तो छ भनि जाँच्नको लागि हामी तपाईलाई अनुगमन कार्यक्रममा सहभागि हुनुहोस् भनी आग्रह गर्दछौ र तपाईलाई फेरी संपर्क गर्न चाहन्छौ । यद्दपी तपाईको मंजुरी पाए मात्र हामी यसो गर्छौं । तपाई यो निर्णयलाई कुनै पनि बेला परिवर्तन गर्न र टुंग्याउन स्वतन्त्र हुनुहुन्छ ।

अनुगमनमा तपाई संपर्कमा आउनु हुन्छ भने कृपया तलको बक्समा चिन्ह लगाउनु होला ।

फेरी सम्पर्कलाई म मंजुरीनामा दिन्छु ☐

फेरी सम्पर्कलाई म मंजुरीनामा दिन्न ☐

POST-TEST CONSENT FORMS

You are requested to participate in the post-test to explore the effectiveness of teaching sexual and reproductive health education in school. However, we will only do this with your consent. You are free to change your mind and withdraw your consent at any time.

If you wish to be contacted for the follow up, please tick the box below.

I give my consent to be contacted again ☐

I do not give my consent to be contacted again ☐

Thank you for completing the questionnaire.

Appendix-4: Focus Group Discussions (FGDs)-Discussion Guide

TOPICS	OBJECTIVES OF THE QUESTION
Background and participants' consent	
Rapport building and consent	The researcher welcomes the respondent and shares the purpose of the study. A consent form is distributed among the respondent. Consent will be obtained from every respondents.
Demographic characteristics and key issues	
Demographic and socio-economic characteristics of the participants.	This question addresses respondents' socio-economic characteristics. The researcher mainly collects information about respondents' age, sex, marital status, occupation, ethnicity and living place including family structure.
In your opinion, what are the major problems of young people in schools? e.g. social, economical, sexual health.	This question attempts to enter into the research the issue of young people's sexual health. It also identifies their major sexual health problems while attending secondary schools in Nepal.
Who faces more problems, such as social, sexual and other issues, and how? E.g. boys/girls, married/unmarried, ethnic group.	This question explores who is facing more sexual health problems among school young people.
Sexual health knowledge and behaviours	
What do you think about providing sexual health knowledge to young people?	This question explores young people's views about sexual health.
Do you think school boys/girls have sexual intercourse? If yes, what proportions of which factors encourage/influence them to have sexual intercourse?	The question attempts to explore the factors that encourage young people to have sexual intercourse, such as: peer pressure, modernisation, imitation, media influence, internet, etc.
What do you think about the relationship	This question attempts to get views

between local culture/custom (ethical and social) and sexual behaviour? Do you think the local culture/custom encourages young people to perform sexual intercourse? How? Could you please explain?	regarding culture and sexual behaviour. Nepal is a multicultural country and different ethnic groups have their own norms and values. Respondents are encouraged to share some examples from culture which encourage them to perform sexual intercourse
In your opinion, what are unsafe sexual practices? Do young people in your school have unsafe sex? e.g. no condom use and multiple partners?	It addresses young people's views towards unsafe sex, and also attempts to collect information about reasons for risk taking behaviours
Why do young people take such risks? Do you think the local environment/settings influence it? How? e.g. media, movies, social events, etc.	This question also explores their risky sexual behaviours.
Do you think that parents can help to promote young people's sexual health?	This question explores parental role to enhance young people's sexual health development.
How important is safe sex?	It collects information about attitudes towards safe sex.
Attitudes towards condom	
What do you think about condoms? What do you know about condom use practices among your school friends?	These questions explore their attitudes about the use of condoms among their school friends.
In your opinion, who provides condom during sexual intercourse, e.g. boys or girls?	This question collects information about the reasons for using or not using condoms.
Accessibility of condoms and other sexual health services	
What is your opinion about the accessibility/availability of condoms near to your schools? Do young people think condoms are affordable to all?	This question assesses information about the availability, accessibility and affordability of condoms in the school area.

What types of sexual health services are available near to your school? Do school students go to the service delivery points if they need services? If not, why?	
Concern and responsibility for safer sex	
Who demonstrates most concern or responsibility for safe sex, boys or girls? What is your opinion?	This question prompts discussion about the responsibility for safer sex practices. Respondents are asked to share their views on who is more responsible for safer practices, boys or girls.
Please provide suggestions to policy makers and stakeholders for further improvement of sex education in schools.	This question provides information for further improvement of sexual health education in schools.

Appendix-5: Key Informant Interviews (KIIs)-Discussion Guide

The following topic guides were developed for interview purpose.

Introduction

- Welcome to the participants and briefing about this study.
- Collect information about demographic and socio-economic characteristics.

For teachers

- Training to school teachers in sexual health education to date.
- Any other people (non-teachers) involved in delivering sexual health education in schools? If so, who they are, continuous or ad-hoc basis.
- Involvement of parents in developing the content and delivery of sexual health education.
- Issues or complaints raised about sex education programmes in schools.
- Sex education programmes reviewed or evaluated in the last two years.
- Particular success of the sex education programme.
- Particular constraints encountered.
- Any likely changes to the current sex education programme in the near future.
- Any topics you feel are important but are not included at present.
- Any other comments.

For parents

- Attitude towards sexual health education in schools.
- Discussing sex and sexuality issues with the children.
- Role in school health policy development.
- Partnership work with school.
- Suggestions for further improvement in sex education in schools.
- Review of existing school sex education policies.
- Promote and monitor the use of exemplar materials.

Appendix-6: Pupil consent form

Pupil consent form

I have been asked to take part in a sexual health education research programme in Nepalese secondary school. The information received from this study will help to understand the existing situation of sexual health among school students in Nepal. The findings of this study will be useful to develop policies and appropriate intervention programmes for young people in school settings.

I understand that my participation in this study is voluntary and the information gained from this study will remain strictly confidential. I am free to withdraw at any time from the study, without giving any reason.

For any question or query about this research, please contact:
Mr Dev Raj Acharya, PhD student
Aberystwyth University, UK
Email: dra09@aber.ac.uk

Do you want to take part in this research?
_____ Yes, I want to take part in this research.
_____ No, I do not want to take part in this research.
_____ Student Name/Signature
_____ School Name
_____ Date

Appendix-7: Parental consent form

Parental consent form

Dear Parent/Guardian,

I am a PhD student at Aberystwyth University. I am conducting a school-based sexual health education intervention research programme and your child (son/daughter) is encouraged to participate in it. The research requires obtaining permission from the parent/guardian of students who attend a class in school. Therefore, you are requested to provide the permission to involve your child in this research.

If you approve of your son or daughter attending the research, please indicate your approval below, using the appropriate box. You are free to withdraw or change your mind to stop your child attending the research programme at any time. The information received from this study will be remained strictly confidential. If you have any question or query about this research, please contact me:

Mr Dev Raj Acharya, PhD student
Aberystwyth University, UK
Email: dra09@aber.ac.uk

Do you want your child to take part in this research?

_____ Yes, I want my child to take part in this research.

_____ No, I do not want my child to take part in this research.

_____ Student's Name

_____ Parent Name/Signature

_____ Date

Appendix-8: Oral consent text

As you know, I am Dev Raj Acharya, PhD student from Aberystwyth University, in the United Kingdom. I am conducting a study on the effectiveness of delivering sex education in secondary schools in Nepal, and I would like to ask you some questions about sex education. I would like to tape record our conversation, so that I can get your words accurately. If at any time during our talk you feel uncomfortable answering a question please let me know; and you do not have to answer it. Or, if you want to answer a question but do not want it tape recorded, please let me know and I will turn off the recorder. If there is anything you do not want me to record please tell me about it. I will turn off the recorder and erase what you said. If at any time you want to withdraw from this study please tell me and I will erase the tape of our conversation. I will not reveal the content of our conversation beyond myself and people helping me whom I trust to maintain your confidentiality. I will do everything I can to protect your privacy. Now I would like to ask you if you agree to participate in this study, and to talk to me about sexual health education. Do you agree to participate, and allow me to tape record our conversation?

Thank you
Dev Raj Acharya

Appendix-9: Questionnaire piloting

Table-1: Content validity (items not meeting the required level of endorsement; ≥0.89)

Questionnaires	Content Validity Index (CVI)
Do you live at home?	0.78
Who do you live with?	0.67
How many other family members live in the same household as you?	0.67
What is your father's occupational status?	0.78
What is your mother's occupational status?	0.78
Boy and girl should have sex before they are married	0.78
You should be in love before having sex	0.78
I would never consider my girlfriend having an abortion	0.56

Table-2: Plausible items (acceptance level ≥ 95%)

Questionnaires	valid answers	for discussions	missing
Parents as a source of sexual health information	85.71%, n=180	1.43%, n=3	12.86%, n=27
Older relatives provide sexual health information	84.76%, n=178	1.90%, n=4	13.33%, n=28
Religious leaders provide sexual health information	87.14%, n=183	0.95%, n=2	11.90%, n=25

Table-3: Overall reliability check (item-total correlation acceptance=≥0.3*, Cronbach's alpha acceptance=≤0.91**)

questionnaire items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation*	Cronbach's Alpha if Item Deleted**
A person can suffer from an STI but may have no symptom	89.09	299.906	.296	.913
Menstruation is controlled by the nervous system	89.96	308.844	.041	.916
Father's chromosome determines baby's sex	90.07	309.474	.030	.916
If boys and girls agree, there is nothing wrong with having sex	90.15	304.372	.204	.914
A majority of my friends have already had sex	90.89	308.118	.074	.915
I get sexual health advice from boyfriend/girlfriend	89.24	315.543	-.140	.919

Table-4: Correlation coefficient and significance between all pairs of items

questionnaire items	value
Sexual abuse harms adolescents' future	0.938 (Pearson correlation coefficient, >0.9)
TV/films as a source of sexual health information	0.235 (One-tailed significance of the coefficients, >0.05)
Condom can't prevent HIV infection	0.110 (One-tailed significance of the coefficients, >0.05)
Young people should know that others' have right to say 'no'	0.056 (One-tailed significance of the coefficients, >0.05)
It is women's responsibility to use contraception	0.107 (One-tailed significance of the coefficients, >0.05)

Table-5: Principal component analysis (<0.5 in the communalities were removed)

questionnaire items	communalities
Early marriage leads to early pregnancy	0.449
Unsafe abortion among girls leads to maternal death	0.497
School teacher as a source of sexual health information	0.498
Parents do not understand young people's feelings	0.221
Books/magazines as a source of sexual health information	0.462
Sexual intercourse invites sex related problems	0.464

Table-6: Rotated component matrix (18 questionnaire items)

factors	questionnaire items	components			
		1	2	3	4
Sexual health norms and beliefs	I believe in abstinence which means to avoid sex	.897			
	Females should be considered untouchable during menstruation	.857			
	A girl loses her dignity if she has sex before marriage	.855			
	A girl can suggest a boy uses a condom if he suffers from an STI	.850			
Sources of sexual health information	Friends/peers		.844		
	Relatives of similar age such as brothers/sisters/cousins		.783		
	Health professional such as doctor/nurse		.710		
	Visitor from outside such as health facilitator		.691		
	Youth volunteer worker		.531		
	Chemist or pharmacy		.516		
Sexual health knowledge and understanding	Unsafe sexual behaviour is adolescent's current problem			.861	
	STIs (Sexually Transmitted Infections) may cause infertility			.804	
	Loneliness occurs as a result of emotional changes			.761	
	It is better to have only one sex partner for sexual relationship			.697	
Sexual health awareness level	Parental counselling is important for sexual health development				.858
	Fertilisation is a natural process that takes place in fallopian tube				.851
	Adolescent experience growth of height during physical changes				.494
	Condom is used correctly and consistently for safer sex purpose				.491

Appendix-10: Testing normality

Variables	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Sources of sexual health information						
Friends/peers	.451	787	.000	.573	787	.000
Relatives of similar age such as brothers/sisters/cousins	.381	787	.000	.670	787	.000
Health professional such as doctor/nurse	.525	787	.000	.360	787	.000
Visitor from outside such as health facilitator	.478	787	.000	.515	787	.000
Youth Volunteer Worker	.391	787	.000	.656	787	.000
Chemist or Pharmacy	.350	787	.000	.695	787	.000
Sexual health awareness level						
Parental counselling is important for sexual health development	.473	787	.000	.525	787	.000
Fertilisation is a natural process that takes place in fallopian tube	.352	787	.000	.724	787	.000
Adolescent experience growth of height during physical change	.512	787	.000	.414	787	.000
Condom is used correctly and consistently for safer sex purpose	.473	787	.000	.526	787	.000
Sexual health knowledge and understanding						
Unsafe sexual behaviour is adolescents' current problem	.515	787	.000	.393	787	.000
STIs (Sexually Transmitted Infections) may cause infertility	.410	787	.000	.639	787	.000
Loneliness occurs as a result of emotional change	.483	787	.000	.501	787	.000
It is better to have only one sex partner for sexual relationship	.525	787	.000	.347	787	.000
Sexual health norms and beliefs						
I believe in abstinence which means to avoid sex	.387	787	.000	.671	787	.000
Females should be considered untouchable during menstruation	.387	787	.000	.654	787	.000
A girl loses her dignity if she has sex before marriage	.423	787	.000	.614	787	.000
A girl can suggest a boy uses a condom if he suffers from an STI	.512	787	.000	.408	787	.000

a. Lilliefors Significance Correction

Appendix-11: Socio-background characteristics by pre-test/post-test vs. control/experiment

Table-1: Type of exposure and pre-test/post-test response among Brahman/Chhetri

			pre-test/post-test		Total
			pre-test	post-test	
control/experiment	control	Count	116	106	222
		% within control/experiment	52.3%	47.7%	100.0%
	experiment	Count	87	69	156
		% within control/experiment	55.8%	44.2%	100.0%
Total		Count	203	175	378
		% within control/experiment	53.7%	46.3%	100.0%

Yates's Continuity Correction=0.325 df 1, P=0.568 Sig. (2-sided)

Table-2: Type of exposure and pre-test/post-test response among Magar/Gurung/Rai/Limbu

			pre-test/post-test		Total
			pre-test	post-test	
control/experiment	control	Count	20	20	40
		% within control/experiment	50.0%	50.0%	100.0%
	experiment	Count	28	26	54
		% within control/experiment	51.9%	48.1%	100.0%
Total		Count	48	46	94
		% within control/experiment	51.1%	48.9%	100.0%

Yates's Continuity Correction=0.000 df 1, P=1.000 Sig. (2-sided)

Table-3: Type of exposure and pre-test/post-test response among Newar

			pre-test/post-test		Total
			pre-test	post-test	
control/experiment	control	Count	29	25	54
		% within control/experiment	53.7%	46.3%	100.0%
	experiment	Count	19	14	33
		% within control/experiment	57.6%	42.4%	100.0%
Total		Count	48	39	87
		% within control/experiment	55.2%	44.8%	100.0%

Yates's Continuity Correction=0.017 df 1, P=0.896 Sig. (2-sided)

Table-4: Type of exposure and pre-test/post-test response among Tamang

			pre-test/post-test		Total
			pre-test	post-test	
control/experiment	control	Count	33	31	64
		% within control/experiment	51.6%	48.4%	100.0%
	experiment	Count	33	24	57
		% within control/experiment	57.9%	42.1%	100.0%
Total		Count	66	55	121
		% within control/experiment	54.5%	45.5%	100.0%

Yates's Continuity Correction=0.266 df 1, P=0.606 Sig. (2-sided)

Table-5: Type of exposure and pre-test/post-test response among Madhesi

			pre-test/post-test		Total
			pre-test	post-test	
control/experiment	control	Count	19	19	38
		% within control/experiment	50.0%	50.0%	100.0%
	experiment	Count	3	1	4
		% within control/experiment	75.0%	25.0%	100.0%
Total		Count	22	20	42
		% within control/experiment	52.4%	47.6%	100.0%

Fisher's Exact Test, P=0.608 Sig. (2-sided)

Table-6: Type of exposure and pre-test/post-test response among Others

			pre-test/post-test		Total
			pre-test	post-test	
control/experiment	control	Count	20	20	40
		% within control/experiment	50.0%	50.0%	100.0%
	experiment	Count	14	11	25
		% within control/experiment	56.0%	44.0%	100.0%
Total		Count	34	31	65
		% within control/experiment	52.3%	47.7%	100.0%

Yates's Continuity Correction=0.047 df 1, P=0.829 Sig. (2-sided)

Table-7: Type of exposure and pre-test/post-test response among male

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	108	102	210
		% within control/experiment	51.4%	48.6%	100.0%
	experiment	Count	85	73	158
		% within control/experiment	53.8%	46.2%	100.0%
Total		Count	193	175	368
		% within control/experiment	52.4%	47.6%	100.0%

Yates's Continuity Correction=0.119 df 1, P=0.730 Sig. (2-sided)

Table-8: Type of exposure and pre-test/post-test response among female

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	129	119	248
		% within control/experiment	52.0%	48.0%	100.0%
	experiment	Count	99	72	171
		% within control/experiment	57.9%	42.1%	100.0%
Total		Count	228	191	419
		% within control/experiment	54.4%	45.6%	100.0%

Yates's Continuity Correction=1.183 df 1, P=0.277 Sig. (2-sided)

Table-9: Type of exposure and pre-test/post-test response among 14 year old pupils

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	104	97	201
		% within control/experiment	51.7%	48.3%	100.0%
	experiment	Count	72	49	121
		% within control/experiment	59.5%	40.5%	100.0%
Total		Count	176	146	322
		% within control/experiment	54.7%	45.3%	100.0%

Yates's Continuity Correction=1.537 df 1, P=0.215 Sig. (2-sided)

Table-10: Type of exposure and pre-test/post-test response among 15 year old pupils

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	68	61	129
		% within control/experiment	52.7%	47.3%	100.0%
	experiment	Count	45	38	83
		% within control/experiment	54.2%	45.8%	100.0%
Total		Count	113	99	212
		% within control/experiment	53.3%	46.7%	100.0%

Yates's Continuity Correction=0.005 df 1, P=0.942 Sig. (2-sided)

Table-11: Type of exposure and pre-test/post-test response among 16 year old pupils

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	49	48	97
		% within control/experiment	50.5%	49.5%	100.0%
	experiment	Count	43	40	83
		% within control/experiment	51.8%	48.2%	100.0%
Total		Count	92	88	180
		% within control/experiment	51.1%	48.9%	100.0%

Yates's Continuity Correction=0.001 df 1, P=0.981 Sig. (2-sided)

Table-12: Type of exposure and pre-test/post-test response among 17 year old pupils

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	14	13	27
		% within control/experiment	51.9%	48.1%	100.0%
	experiment	Count	14	9	23
		% within control/experiment	60.9%	39.1%	100.0%
Total		Count	28	22	50
		% within control/experiment	56.0%	44.0%	100.0%

Yates's Continuity Correction=0.126 df 1, P=0.723 Sig. (2-sided)

Table-13: Type of exposure and pre-test/post-test response among 18 year old pupils

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	2	2	4
		% within control/experiment	50.0%	50.0%	100.0%
	experiment	Count	10	9	19
		% within control/experiment	52.6%	47.4%	100.0%
Total		Count	12	11	23
		% within control/experiment	52.2%	47.8%	100.0%

Fisher's Exact Test, P=1.000 Sig. (2-sided)

Table-14: Type of exposure and pre-test/post-test response (father education-illiterate)

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	11	10	21
		% within control/experiment	52.4%	47.6%	100.0%
	experiment	Count	28	25	53
		% within control/experiment	52.8%	47.2%	100.0%
Total		Count	39	35	74
		% within control/experiment	52.7%	47.3%	100.0%

Yates's Continuity Correction=0.000 df 1, P=1.000 Sig. (2-sided)

Table-15: Type of exposure and pre-test/post-test response (father education-informal/non-formal)

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	10	6	16
		% within control/experiment	62.5%	37.5%	100.0%
	experiment	Count	23	18	41
		% within control/experiment	56.1%	43.9%	100.0%
Total		Count	33	24	57
		% within control/experiment	57.9%	42.1%	100.0%

Yates's Continuity Correction=0.020 df 1, P=0.888 Sig. (2-sided)

Table-16: Type of exposure and pre-test/post-test response (father education-primary)

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	53	50	103
		% within control/experiment	51.5%	48.5%	100.0%
	experiment	Count	34	32	66
		% within control/experiment	51.5%	48.5%	100.0%
Total		Count	87	82	169
		% within control/experiment	51.5%	48.5%	100.0%

Yates's Continuity Correction=0.000 df 1, P=1.000 Sig. (2-sided)

Table-17: Type of exposure and pre-test/post-test response (father education–secondary)

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	58	54	112
		% within control/experiment	51.8%	48.2%	100.0%
	experiment	Count	41	27	68
		% within control/experiment	60.3%	39.7%	100.0%
Total		Count	99	81	180
		% within control/experiment	55.0%	45.0%	100.0%

Yates's Continuity Correction=0.918 df 1, P=0.338 Sig. (2-sided)

Table-18: Type of exposure and pre-test/post-test response (father education-school leaving certificate)

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	66	65	131
		% within control/experiment	50.4%	49.6 %	100.0%
	experiment	Count	43	34	77
		% within control/experiment	55.8%	44.2 %	100.0%
Total		Count	109	99	208
		% within control/experiment	52.4%	47.6 %	100.0%

Yates's Continuity Correction=0.382 df 1, P=0.537 Sig. (2-sided)

Table-19: Type of exposure and pre-test/post-test response (father education-college/university)

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	39	36	75
		% within control/experiment	52.0%	48.0 %	100.0%
	experiment	Count	15	9	24
		% within control/experiment	62.5%	37.5 %	100.0%
Total		Count	54	45	99
		% within control/experiment	54.5%	45.5 %	100.0%

Yates's Continuity Correction=0.440 df 1, P=0.507 Sig. (2-sided)

Table-20: Type of exposure and pre-test/post-test response (mother education-illiterate)

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	58	49	107
		% within control/experiment	54.2%	45.8%	100.0%
	experiment	Count	49	39	88
		% within control/experiment	55.7%	44.3%	100.0%
Total		Count	107	88	195
		% within control/experiment	54.9%	45.1%	100.0%

Yates's Continuity Correction=0.004 df 1, P=0.951 Sig. (2-sided)

Table-21: Type of exposure and pre-test/post-test response (mother education-informal/non-formal)

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	30	28	58
		% within control/experiment	51.7%	48.3%	100.0%
	experiment	Count	43	24	67
		% within control/experiment	64.2%	35.8%	100.0%
Total		Count	73	52	125
		% within control/experiment	58.4%	41.6%	100.0%

Yates's Continuity Correction=1.505 df 1, P=0.220 Sig. (2-sided)

Table-22: Type of exposure and pre-test/post-test response (mother education-primary)

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	66	62	128
		% within control/experiment	51.6%	48.4%	100.0%
	experiment	Count	44	42	86
		% within control/experiment	51.2%	48.8%	100.0%
Total		Count	110	104	214
		% within control/experiment	51.4%	48.6%	100.0%

Yates's Continuity Correction=0.000 df 1, P=1.000 Sig. (2-sided)

Table-23: Type of exposure and pre-test/post-test response (mother education-secondary education)

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	39	39	78
		% within control/experiment	50.0%	50.0%	100.0%
	experiment	Count	23	19	42
		% within control/experiment	54.8%	45.2%	100.0%
Total		Count	62	58	120
		% within control/experiment	51.7%	48.3%	100.0%

Yates's Continuity Correction=0.094 df 1, P=0.759 Sig. (2-sided)

Table-24: Type of exposure and pre-test/post-test response (mother education-school leaving certificate)

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	40	39	79
		% within control/experiment	50.6%	49.4%	100.0%
	experiment	Count	19	15	34
		% within control/experiment	55.9%	44.1%	100.0%
Total		Count	59	54	113
		% within control/experiment	52.2%	47.8%	100.0%

Yates's Continuity Correction=0.094 df 1, P=0.759 Sig. (2-sided)

Table-25: Type of exposure and pre-test/post-test response (mother education-college/university)

			pre-test/post-test		
			pre-test	post-test	Total
control/experiment	control	Count	4	4	8
		% within control/experiment	50.0%	50.0%	100.0%
	experiment	Count	6	6	12
		% within control/experiment	50.0%	50.0%	100.0%
Total		Count	10	10	20
		% within control/experiment	50.0%	50.0%	100.0%

Fisher's Exact Test, P=1.000 Sig. (2-sided)

Appendix 12: The original 5-point Likert scale responses to main questionnaires (18 items) by control vs. experiment

Sources of sexual health information (six questionnaire items)

			1. Friends/peers					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	40	41	44	227	106	458
		% within control/experiment	8.7%	9.0%	9.6%	49.6%	23.1%	100.0%
	experiment	Count	32	33	19	176	69	329
		% within control/experiment	9.7%	10.0%	5.8%	53.5%	21.0%	100.0%
Total		Count	72	74	63	403	175	787
		% within control/experiment	9.2%	9.4%	8.0%	51.2%	22.2%	100.0%

			2. Relatives of similar age					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	51	87	65	189	66	458
		% within control/experiment	11.1%	19.0%	14.2%	41.3%	14.4%	100.0%
	experiment	Count	27	59	25	123	95	329
		% within control/experiment	8.2%	17.9%	7.6%	37.4%	28.9%	100.0%
Total		Count	78	146	90	312	161	787
		% within control/experiment	9.9%	18.6%	11.4%	39.6%	20.5%	100.0%

			3. Health professionals					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	17	30	8	196	207	458
		% within control/experiment	3.7%	6.6%	1.7%	42.8%	45.2%	100.0%
	experiment	Count	9	18	4	155	143	329
		% within control/experiment	2.7%	5.5%	1.2%	47.1%	43.5%	100.0%
Total		Count	26	48	12	351	350	787
		% within control/experiment	3.3%	6.1%	1.5%	44.6%	44.5%	100.0%

			4. Visitors from outside					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	29	34	48	178	169	458
		% within control/experiment	6.3%	7.4%	10.5%	38.9%	36.9%	100.0%
	experiment	Count	16	25	13	185	90	329
		% within control/experiment	4.8%	7.6%	4.0%	56.2%	27.4%	100.0%
Total		Count	45	59	61	363	259	787
		% within control/experiment	5.7%	7.5%	7.8%	46.1%	32.9%	100.0%

			5. Youth volunteer worker					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	52	97	52	176	81	458
		% within control/experiment	11.3%	21.2%	11.4%	38.4%	17.7%	100.0%
	experiment	Count	24	51	25	156	73	329
		% within control/experiment	7.3%	15.5%	7.6%	47.4%	22.2%	100.0%
Total		Count	76	148	77	332	154	787
		% within control/experiment	9.6%	18.8%	9.8%	42.2%	19.6%	100.0%

			6. Chemist or pharmacy					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	76	191	61	71	59	458
		% within control/experiment	16.6%	41.7%	13.3%	15.5%	12.9%	100.0%
	experiment	Count	42	120	39	74	54	329
		% within control/experiment	12.7%	36.5%	11.9%	22.5%	16.4%	100.0%
Total		Count	118	311	100	145	113	787
		% within control/experiment	15.0%	39.5%	12.7%	18.4%	14.4%	100.0%

Sexual health awareness level (four questionnaire items)

			1. Parental counselling is important for sexual health development					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	42	27	30	180	179	458
		% within control/experiment	9.1%	5.9%	6.6%	39.3%	39.1%	100.0%
	experiment	Count	13	13	45	155	103	329
		% within control/experiment	4.0%	4.0%	13.6%	47.1%	31.3%	100.0%
Total		Count	55	40	75	335	282	787
		% within control/experiment	7.0%	5.1%	9.5%	42.6%	35.8%	100.0%

			2. Fertilisation is a natural process that takes place in fallopian tube					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	13	68	139	160	78	458
		% within control/experiment	2.8%	14.9%	30.4%	34.9%	17.0%	100.0%
	experiment	Count	14	19	89	147	60	329
		% within control/experiment	4.3%	5.7%	27.1%	44.7%	18.2%	100.0%
Total		Count	27	87	228	307	138	787
		% within control/experiment	3.4%	11.1%	29.0%	39.0%	17.5%	100.0%

			3. Adolescent experience growth of height during physical change					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	42	19	22	179	196	458
		% within control/experiment	9.2%	4.1%	4.8%	39.1%	42.8%	100.0%
	experiment	Count	10	12	5	168	134	329
		% within control/experiment	3.0%	3.7%	1.5%	51.1%	40.7%	100.0%
Total		Count	52	31	27	347	330	787
		% within control/experiment	6.7%	3.9%	3.4%	44.1%	41.9%	100.0%

			4. Condom is used correctly and consistently for safer sex purpose					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	22	29	19	139	249	458
		% within control/experiment	4.8%	6.3%	4.2%	30.3%	54.4%	100.0%
	experiment	Count	25	45	34	110	115	329
		% within control/experiment	7.6%	13.7%	10.3%	33.4%	35.0%	100.0%
Total		Count	47	74	53	249	364	787
		% within control/experiment	6.0%	9.4%	6.7%	31.6%	46.3%	100.0%

Sexual health knowledge and understanding (four questionnaire items)

			1. Unsafe sexual behaviour is adolescent's current problem					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	20	11	13	177	237	458
		% within control/experiment	4.4%	2.4%	2.8%	38.7%	51.7%	100.0%
	experiment	Count	18	16	22	169	104	329
		% within control/experiment	5.4%	4.9%	6.7%	51.4%	31.6%	100.0%
Total		Count	38	27	35	346	341	787
		% within control/experiment	4.9%	3.4%	4.4%	44.0%	43.3%	100.0%

			2. STIs may cause infertility					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	135	185	51	58	29	458
		% within control/experiment	29.5%	40.4%	11.1%	12.7%	6.3%	100.0%
	experiment	Count	57	141	39	60	32	329
		% within control/experiment	17.3%	42.9%	11.9%	18.2%	9.7%	100.0%
Total		Count	192	326	90	118	61	787
		% within control/experiment	24.4%	41.4%	11.4%	15.0%	7.8%	100.0%

			3. Loneliness occurs as a result of emotional changes					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	17	34	33	227	147	458
		% within control/experiment	3.7%	7.4%	7.2%	49.6%	32.1%	100.0%
	experiment	Count	21	33	19	171	85	329
		% within control/experiment	6.4%	10.0%	5.8%	52.0%	25.8%	100.0%
Total		Count	38	67	52	398	232	787
		% within control/experiment	4.8%	8.5%	6.6%	50.6%	29.5%	100.0%

			4. It is better to have only one sex partner for sexual relationship					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	8	14	12	139	285	458
		% within control/experiment	1.7%	3.1%	2.6%	30.3%	62.3%	100.0%
	experiment	Count	22	15	10	111	171	329
		% within control/experiment	6.7%	4.6%	3.0%	33.7%	52.0%	100.0%
Total		Count	30	29	22	250	456	787
		% within control/experiment	3.8%	3.7%	2.8%	31.8%	57.9%	100.0%

Sexual health norms and beliefs (four questionnaire items)

			1. I believe in abstinence which means to avoid sex					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	21	90	61	142	144	458
		% within control/experiment	4.6%	19.7%	13.3%	31.0%	31.4%	100.0%
	experiment	Count	16	53	58	115	87	329
		% within control/experiment	4.9%	16.1%	17.6%	35.0%	26.4%	100.0%
Total		Count	37	143	119	257	231	787
		% within control/experiment	4.6%	18.2%	15.1%	32.7%	29.4%	100.0%

			2. Females should be considered untouchable during menstruation					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	159	107	32	102	58	458
		% within control/experiment	34.6%	23.4%	7.0%	22.3%	12.7%	100.0%
	experiment	Count	89	122	28	70	20	329
		% within control/experiment	27.1%	37.1%	8.5%	21.2%	6.1%	100.0%
Total		Count	248	229	60	172	78	787
		% within control/experiment	31.5%	29.1%	7.6%	21.9%	9.9%	100.0%

			3. A girl loses her dignity if she has sex before marriage					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	56	50	25	141	186	458
		% within control/experiment	12.2%	10.9%	5.5%	30.8%	40.6%	100.0%
	experiment	Count	54	45	26	131	73	329
		% within control/experiment	16.4%	13.7%	7.9%	39.8%	22.2%	100.0%
Total		Count	110	95	51	272	259	787
		% within control/experiment	14.0%	12.1%	6.4%	34.6%	32.9%	100.0%

			4. A girl can suggest a boy uses a condom if he suffers from an STI					
			strongly disagree	disagree	neither agree nor disagree	agree	strongly agree	Total
control/experiment	control	Count	25	17	18	193	205	458
		% within control/experiment	5.5%	3.7%	3.9%	42.1%	44.8%	100.0%
	experiment	Count	16	16	15	151	131	329
		% within control/experiment	4.8%	4.9%	4.6%	45.9%	39.8%	100.0%
Total		Count	41	33	33	344	336	787
		% within control/experiment	5.2%	4.2%	4.2%	43.7%	42.7%	100.0%

Appendix 13: Participants' responses to main questionnaires (18 items) in 3-point Likert scale by control vs. experiment

Table 1:-Sources of sexual health information (six questionnaire items)

			1. Friends/peers			
			disagree	neither	agree	Total
control/experiment	control	Count	81	44	333	458
		% within control/experiment	17.7%	9.6%	72.7%	100.0%
	experiment	Count	65	19	245	329
		% within control/experiment	19.8%	5.7%	74.5%	100.0%
Total		Count	146	63	578	787
		% within control/experiment	18.6%	8.0%	73.4%	100.0%

			2. Relatives of similar age			
			disagree	neither	agree	Total
control/experiment	control	Count	138	65	255	458
		% within control/experiment	30.1%	14.2%	55.7%	100.0%
	experiment	Count	86	25	218	329
		% within control/experiment	26.1%	7.6%	66.3%	100.0%
Total		Count	224	90	473	787
		% within control/experiment	28.5%	11.4%	60.1%	100.0%

			3. Health professionals			Total
			disagree	neither	agree	
control/experiment	control	Count	47	8	403	458
		% within control/experiment	10.3%	1.7%	88.0%	100.0%
	experiment	Count	27	4	298	329
		% within control/experiment	8.2%	1.2%	90.6%	100.0%
Total		Count	74	12	701	787
		% within control/experiment	9.4%	1.5%	89.1%	100.0%

			4. Visitors from outside			Total
			disagree	neither	agree	
control/experiment	control	Count	63	48	347	458
		% within control/experiment	13.8%	10.5%	75.7%	100.0%
	experiment	Count	41	13	275	329
		% within control/experiment	12.5%	4.0%	83.6%	100.0%
Total		Count	104	61	622	787
		% within control/experiment	13.2%	7.8%	79.0%	100.0%

			5. Youth volunteer worker			Total
			disagree	neither	agree	
control/experiment	control	Count	149	52	257	458
		% within control/experiment	32.5%	11.4%	56.1%	100.0%
	experiment	Count	75	25	229	329
		% within control/experiment	22.8%	7.6%	69.6%	100.0%
Total		Count	224	77	486	787
		% within control/experiment	28.5%	9.8%	61.8%	100.0%

			6. Chemist or pharmacy			Total
			disagree	neither	agree	
control/experiment	control	Count	267	61	130	458
		% within control/experiment	58.3%	13.3%	28.4%	100.0%
	experiment	Count	162	39	128	329
		% within control/experiment	49.2%	11.9%	38.9%	100.0%
Total		Count	429	100	258	787
		% within control/experiment	54.5%	12.7%	32.8%	100.0%

Table 2:-Sexual health awareness level (four questionnaire items)

			1. Parental counselling is important for sexual health development			
			disagree	neither	agree	Total
control/experiment	control	Count	69	30	359	458
		% within control/experiment	15.1%	6.5%	78.4%	100.0%
	experiment	Count	26	45	258	329
		% within control/experiment	7.9%	13.7%	78.4%	100.0%
Total		Count	95	75	617	787
		% within control/experiment	12.1%	9.5%	78.4%	100.0%

			2. Fertilisation is a natural process that takes place in fallopian tube			
			disagree	neither	agree	Total
control/experiment	control	Count	81	139	238	458
		% within control/experiment	17.7%	30.3%	52.0%	100.0%
	experiment	Count	33	89	207	329
		% within control/experiment	10.0%	27.1%	62.9%	100.0%
Total		Count	114	228	445	787
		% within control/experiment	14.5%	29.0%	56.5%	100.0%

			3. Adolescent experience growth of height during physical change growth of height			Total
			disagree	neither	agree	
control/experiment	control	Count	61	22	375	458
		% within control/experiment	13.3%	4.8%	81.9%	100.0%
	experiment	Count	22	5	302	329
		% within control/experiment	6.7%	1.5%	91.8%	100.0%
Total		Count	83	27	677	787
		% within control/experiment	10.5%	3.4%	86.0%	100.0%

			4. Condom is used correctly and consistently for safer sex purpose			Total
			disagree	neither	agree	
control/experiment	control	Count	51	19	388	458
		% within control/experiment	11.1%	4.2%	84.7%	100.0%
	experiment	Count	70	34	225	329
		% within control/experiment	21.3%	10.3%	68.4%	100.0%
Total		Count	121	53	613	787
		% within control/experiment	15.4%	6.7%	77.9%	100.0%

Table 3:-Sexual health knowledge and understanding (four questionnaire items)

			1. Unsafe sexual behaviour is adolescent's current problem			Total
			disagree	neither	agree	
control/experiment	control	Count	31	13	414	458
		% within control/experiment	6.8%	2.8%	90.4%	100.0%
	experiment	Count	34	22	273	329
		% within control/experiment	10.3%	6.7%	83.0%	100.0%
Total		Count	65	35	687	787
		% within control/experiment	8.3%	4.4%	87.3%	100.0%

			2. STIs may cause infertility			Total
			disagree	neither	agree	
control/experiment	control	Count	320	51	87	458
		% within control/experiment	69.9%	11.1%	19.0%	100.0%
	experiment	Count	198	39	92	329
		% within control/experiment	60.2%	11.8%	28.0%	100.0%
Total		Count	518	90	179	787
		% within control/experiment	65.8%	11.4%	22.7%	100.0%

			3. Loneliness occurs as a result of emotional changes			Total
			disagree	neither	agree	
control/experiment	control	Count	51	33	374	458
		% within control/experiment	11.1%	7.2%	81.7%	100.0%
	experiment	Count	54	19	256	329
		% within control/experiment	16.4%	5.8%	77.8%	100.0%
Total		Count	105	52	630	787
		% within control/experiment	13.3%	6.6%	80.1%	100.0%

			4. It is better to have only one sex partner for sexual relationship			Total
			disagree	neither	agree	
control/experiment	control	Count	22	12	424	458
		% within control/experiment	4.8%	2.6%	92.6%	100.0%
	experiment	Count	37	10	282	329
		% within control/experiment	11.2%	3.1%	85.7%	100.0%
Total		Count	59	22	706	787
		% within control/experiment	7.5%	2.8%	89.7%	100.0%

Table 4: Sexual health norms and beliefs (four questionnaire items)

			1. I believe in abstinence which means to avoid sex			
			disagree	neither	agree	Total
control/experiment	control	Count	111	61	286	458
		% within control/experiment	24.2%	13.4%	62.4%	100.0%
	experiment	Count	69	58	202	329
		% within control/experiment	21.0%	17.6%	61.4%	100.0%
Total		Count	180	119	488	787
		% within control/experiment	22.9%	15.1%	62.0%	100.0%

			2. Females should be considered untouchable during menstruation			
			disagree	neither	agree	Total
control/experiment	control	Count	266	32	160	458
		% within control/experiment	58.1%	7.0%	34.9%	100.0%
	experiment	Count	211	28	90	329
		% within control/experiment	64.1%	8.5%	27.4%	100.0%
Total		Count	477	60	250	787
		% within control/experiment	60.6%	7.6%	31.8%	100.0%

			3. A girl loses her dignity if she has sex before marriage			
			disagree	neither	agree	Total
control/experiment	control	Count	106	25	327	458
		% within control/experiment	23.1%	5.5%	71.4%	100.0%
	experiment	Count	99	26	204	329
		% within control/experiment	30.1%	7.9%	62.0%	100.0%
Total		Count	205	51	531	787
		% within control/experiment	26.0%	6.5%	67.5%	100.0%

			4. A girl can suggest a boy uses a condom if he suffers from an STI			
			disagree	neither	agree	Total
control/experiment	control	Count	42	18	398	458
		% within control/experiment	9.2%	3.9%	86.9%	100.0%
	experiment	Count	32	15	282	329
		% within control/experiment	9.7%	4.6%	85.7%	100.0%
Total		Count	74	33	680	787
		% within control/experiment	9.4%	4.2%	86.4%	100.0%

Appendix 14: Main questionnaire variables 3-point Likert scale (18 items) and z-scores by gender (control schools):

	Sources of sexual health information (1)	Sources of sexual health information (2)	Sources of sexual health information (3)	Sources of sexual health information (4)	Sources of sexual health information (5)	Sources of sexual health information (6)	Sexual health awareness level (1)	Sexual health awareness level (2)	Sexual health awareness level (3)
Mann-Whitney U	21452.000	22185.500	25634.000	25561.000	22305.000	20662.000	21321.000	25215.500	22491.500
Wilcoxon W	52328.000	44340.500	47789.000	56437.000	53181.000	51538.000	43476.000	56091.500	44646.500
Z	-4.165	-3.059	-.510	-.453	-2.982	-4.324	-4.660	-.643	-3.754
Asymp. Sig. (2-tailed)	.000	.002	.610	.651	.003	.000	.000	.520	.000

	Sexual health awareness level (4)	Sexual health knowledge/understanding (1)	Sexual health knowledge/understanding (2)	Sexual health knowledge/understanding (3)	Sexual health knowledge/understanding (4)	Sexual health norms and beliefs (1)	Sexual health norms and beliefs (2)	Sexual health norms and beliefs (3)	Sexual health norms and beliefs (4)
Mann-Whitney U	25088.000	25353.500	23499.000	24736.500	25675.000	24272.500	23620.000	23103.000	25568.000
Wilcoxon W	55964.000	47508.500	45654.000	46891.500	56551.000	46427.500	54496.000	45258.000	56444.000
Z	-1.079	-.952	-2.232	-1.371	-.569	-1.456	-1.965	-2.635	-.571
Asymp. Sig. (2-tailed)	.280	.341	.026	.170	.569	.145	.049	.008	.568

Appendix 15: Main questionnaire variables 3-point Likert scale (18 items) and z-scores by gender (experimental schools):

	Sources of sexual health information (1)	Sources of sexual health information (2)	Sources of sexual health information (3)	Sources of sexual health information (4)	Sources of sexual health information (5)	Sources of sexual health information (6)	Sexual health awareness level (1)	Sexual health awareness level (2)	Sexual health awareness level (3)
Mann-Whitney U	13323.000	13320.000	13460.500	13095.000	12770.000	11277.000	13093.500	11298.000	12329.000
Wilcoxon W	28029.000	25881.000	26021.500	27801.000	27476.000	25983.000	27799.500	26004.000	24890.000
Z	-.284	-.264	-.111	-.746	-1.063	-2.859	-.672	-3.002	-2.878
Asymp. Sig. (2-tailed)	.777	.792	.912	.455	.288	.004	.502	.003	.004

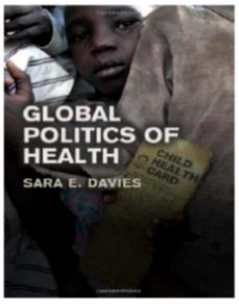
	Sexual health awareness level (4)	Sexual health knowledge/understanding (1)	Sexual health knowledge/understanding (2)	Sexual health knowledge/understanding (3)	Sexual health knowledge/understanding (4)	Sexual health norms and beliefs (1)	Sexual health norms and beliefs (2)	Sexual health norms and beliefs (3)	Sexual health norms and beliefs (4)
Mann-Whitney U	12603.000	12625.000	12840.000	13293.000	13417.500	12872.500	13180.000	11761.500	13165.500
Wilcoxon W	27309.000	25186.000	27546.000	27999.000	25978.500	25433.500	25741.000	24322.500	27871.500
Z	-1.285	-1.569	-.891	-.346	-.175	-.850	-.451	-2.367	-.656
Asymp. Sig. (2-tailed)	.199	.117	.373	.729	.861	.395	.652	.018	.512

Appendix-16: Publications

Appendix-16.1: Book review (The Global Politics of Health)

Sociological Research online

The Global Politics of Health
Davies, Sara
Polity Press, Cambridge
2010
9780745640426 (pb)
Order this book?



This book describes the current global health crisis and the political dilemmas. It provides an insightful contribution to intensify the debates over contemporary human health and government systems. The book is divided into three sections: (a) the International Relations (IR) student approach to public health issues; (b) issues that deserve more attention and deliberation, and (c) directions for further study. It consists of seven chapters which mainly focus on seeking to understand the interconnection between health and world politics. Because of my particular interest in population health, I have reviewed four chapters in depth to provide an essence on politics and health preferences in the global level.

The first chapter 'Understanding the Global Politics of Health' is particularly important, as it sets out a framework to guide the remaining sections of the book. The author has introduced two key perspectives in this chapter, e.g. 'statist' focussing on the state as the primary referent, and 'globalist' suggesting individuals as a referent. The main difference is that 'statist' uses the language of security to promote health, while 'globalist' considers individuals as important. The current global politics of health are concerned with either security of the state or the security of the individual. The

author concludes that, if at all possible, both initiatives should be considered at the same time.

The second chapter 'Global Health Actors' describes the range of different players, to some extent, diluting the primary responsibility of the state in the area of public health. It has led to the state losing its' identification as a sole player, since the global players come up with their own agendas in specific areas of public health policy. It is becoming harder to know the patterns of influence in which these players relate to and impact on each other. However, it is very important to know this complex combination to observe the state becoming more or less significant in the health improvement.

The third chapter 'Health as a Human Right' argues that health should be considered as a human right, and describes the challenges it faces from an IR perspective. Many of the powerful governments still do not consider health as a human right, which has led to only limited progress in areas such as women's' rights in the area of reproductive and sexual health, and individuals infected with HIV. Globalists and statists both declare that the state bears the responsibility to respect, protect and fulfil these rights, and that it should provide economic, social and political support to claim them. However, there still remains a considerable area of ambiguity from rights-based claims to understand and identify the positive duties such as what the outcome is meant to look like and which different players are responsible for claiming it.

Chapter six discusses how infectious disease has become a matter of 'high politics' in the Western states and the way they pursue the disease through the language and logic of 'securitisation'. As a consequence, many diseases that exact the highest morbidity and mortality in the world's poorest places have been de-emphasised. The author argues that the poor people are ignored to protect the rich people from the spread of infectious disease, and the wealthy

governments have failed to tackle its root cause. Nevertheless, the World Health Organization (WHO) is able to set up a mechanism to inform the international community of a disease outbreak and to highlight the wider threat of communicable disease, which is distressful to the poorest part of the world, and this is admirable.

Finally, this book examines the relationship between health and IR which is still to be studied systematically. The author suggests that IR more closely examines the interdependence between health and politics, and to establish relations between states and non-state players. The book concludes with mainly three concerns: the variety of players operating at a global level has a greater influence on an individual's health; understanding the dynamics of global health politics allows us to better understand the preference at the global level; and comprehending how relationships between the growing numbers of political players affect health outcomes. In particular, this book would be appropriate to students of health studies, global politics and related disciplines, scholars and researchers, to gain an innovative and comprehensive introduction to health and IR.

Dev R Acharya
Aberystwyth University

Contact Us

Contacting *Sociological Research Online*

- email to: socres@surrey.ac.uk
- Postal address:
  Sociological Research Online
  Department of Sociology
  University of Surrey
  Guildford GU2 7XH
  United Kingdom

Appendix-16.2: Book review (Promoting Health and Well-being through Schools)

Book Reviews

Sacrificing the WHO to the Highest Bidder.

Edited by Theodore H MacDonald. Published by Radcliffe Publishing, 2008. Hardback, 286pp. ISBN 978-1-846192-52-4. Price £29.95.

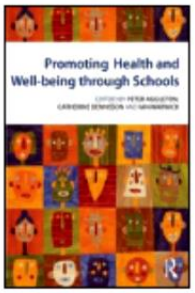
Theodore MacDonald's book, Sacrificing the WHO to the Highest Bidder, is a provocative work confronting a critical topic: the failure of the UN agencies, and more specifically of the World Health Organization (WHO), to fulfill their mandate of promoting health as a human right. The author has no doubts about the culprit: the advent of neoliberalism and structural adjustment programs and the disproportionate power of the IMF, World Bank and WTO within the UN system. The book offers important insights about the geopolitical changes affecting the global economy since the end of the World War II and how these changes have affected the underlying principles of global health promotion. In particular, the book discusses how the ideology of neoliberalism, or free market fundamentalism, has actually affected the policies and practices of the WHO. As the author explains, one of the outcomes of the neoliberal crusade has been to modify the WHO's primary health care approach toward a more 'business-friendly' vision of health promotion. Indeed, since the neoliberal 'hijacking' of the WHO, health has no longer been viewed as a human right, but a commodity to buy and sell in the marketplace. The commodification of health, of course, occurred in tandem with the commodification of the WHO itself. Both are now 'on sale' to the highest bidder.

Throughout the chapters of the book, MacDonald provides some concrete examples showing how, in important cases, the WHO, far from prioritizing public needs and global health concerns, acted on the basis of the interests of the business sector. Quite convincingly, the author uncovered the unhealthy role of the WHO in water privatization, the privatization of vaccine production and its collaboration with the nuclear industry. This book offers an important critical perspective on the subject and should be read widely in the field of global health to debunk naïve assumptions about the role of politics and economics in global health. To be sure, the book would have benefited from some more details about what needs to be done to promote global health as a human right and prevent corporations from progressively transform the WHO into the best health organization money can buy.

Roberto De Vogli, MPH, PhD
Associate Professor, School of Public Health, University of Michigan
Senior Lecturer, Division of Population Health, University College London

Promoting Health and Well-being through Schools

Edited by Peter Aggleton, Catherine Dennison and Ian Warwick. Published by Routledge, Oxon, 2010. Paperback 180pp. ISBN 978-0-415-49342-0. Price £22.99.



This book presents relevant material, highlighting the health issues currently affecting school children. The book stresses different approaches to undertaking health-related activities in schools, which could work efficiently to bring desirable outcomes. Each of the twelve chapters offer largely authoritative advice on effective intervention for some of the key issues of health promotion in schools, ranging from alcohol and substance misuse to sexual health, obesity and mental health.

There is no doubt that this book is well written and provides guidance to head teachers, governors, curriculum leaders and others who are looking for support to meet the new challenges schools now face in health promotion. The guidance is derived from much of the promising practice-based evidence which places emphasis on the changing roles and responsibilities of schools in terms of promoting healthy choices. The authors stress some of the very important factors for schools to consider. These factors include acknowledging young people's social and economic position, recognising the wider role of schools to create concerned citizens and to build learning communities; utilising young peoples' socio-cultural and assets-based frameworks to tackle obesity. The book also considers, developing teachers' skills and confidence so that they can teach sex education, and the need for them to promote involvement at all stages of education. The book highlights the importance of working with parents and school nurses in the planning of curricula and extra-curricular activities and calls for a good-quality evaluation of health promotion programmes in school. The book does emphasise that teachers are as much learners as their pupils.

What I particularly appreciate in this book is the idea of schools engaging with parents and the wider community in order to address the structural barriers so that young people could be provided with 'more options'. The book does however fall short in terms of addressing the issue of 'peer education' which is arguably one of the foremost elements of healthy school initiatives. Despite this failing, I would recommend it to all workers who wish to promote health and well-being in schools.

Dev R Acharya
School of Education & Lifelong Learning
Aberystwyth University, Wales
United Kingdom