

Sexual Knowledge and Risk Behaviour among Female Adolescents with Sexually Transmitted Infections (STIs): Role of Sex Education in Schools

Ishita Chauhan Shivnath Ghosh***

Abstract

Sexual education is a lifelong learning process. In order to make healthy lifestyle choices, every individual must have basic information. Unfortunately, several societies have attempted to limit adolescents from receiving any formal information related to sexual health. According to literature, young people may improve their attitudes and behaviours if they possess knowledge and information on safe sexual behaviour. Furthermore, interventions providing information about STIs, among other constructs, have shown promise in both increasing knowledge and reducing risk. The present study is a mixed method design wherein both quantitative and qualitative method was used to collect data. The findings reveal that female adolescents with STIs reported significantly lower sexual knowledge ($df=198$, $t=9.02$, $p<0.01$) and demonstrate higher sexual risk behaviour ($df=198$, $t=40.45$, $p<0.01$) than their counterparts without STIs. Qualitative analysis based on Focus Group Discussions (FGDs) reveal that female adolescents with STIs lack sexual knowledge and hence demonstrate risky sexual behaviour. The adolescents with and without STIs reported that whatever information they acquire is distorted and are from unauthentic sources. They believe that school based teenage education programme on sexual health should be started. Such initiative would not only result risk reduction but also be a boon in preventive intervention in STIs.

About Authors: *Assistant Professor, Department of Psychology, Rajkiya Kanya Maha Vidyalaya, Shimla.

**Professor, Department of Psychology, Himachal Pradesh University, Shimla.

Introduction

Providing relevant information about STIs and availing the necessary health services is a highly desirable and effective intervention in the prevention and control of STIs (Eaton, Kann, Kinchen, Shanklin and Ross, 2010; Lillie, Pulerwitz and Curbow, 2009; Murphy, Greene, Mihailovic and Olupot-Olupot, 2006; Cherie, Mitkie, Ismail and Berhane, 2005; Barnett and Parkhurst, 2005). Cherie and Berhane (2012) stated lack of knowledge of the disease as a major barrier for seeking treatment for STIs. Numerous reports have shown that adolescents are poorly informed about STIs (Mmari, Oseni and Fatusi, 2010; Molla, Emmelin, Berhane and Lindtjörn, 2008; Trani, Gnisci, Nobile and Angelillo, 2005; Nzioka, 2001). Garside, Ayres,

Owen, Pearson and Roizen (2001) showed that females have poor knowledge as compared to their male counterparts.

Teenagers are exposed to distorted sexual knowledge, as a result they experience various sexual issues (Choi, Kang and Yeau, 2004). School is the most important STDs related knowledge source for the majority of respondents. This finding coincides with other studies (Golbasi and Taskin, 2009; Ayranci, 2005; Gökengin, Yamazhan, Ozkaya, Aytuğ, Ertem, Arda and Serter, 2003). Samkange-Zeeb, Spallek and Zeeb (2011) reviewed 15 studies from all around Europe that implicated the importance of school settings in the education about STDs.

Survey on school children has identified the role of schools and community to be even

stronger than parent's role (Kirby, 2002). Unfortunately, school curriculum is identified as a risk factor for poor sexual health knowledge because school curriculum is incomplete or irrelevant and teachers are untrained to impart sexual health information (Renju, Andrew, Medard, Kishamawe, Kimaryo, Changalucha and Obasi, 2011). Studies conducted in other industrialised countries have also shown that the knowledge of adolescents on STIs is limited to HIV/AIDS (Nsuami et al., 2010; Downs et al., 2006; Clark et al., 2002; Garside et al., 2001).

Sexual knowledge has been found to have a positive influence on limiting sexual attitudes and safe sex behaviour therefore, sexual health education should promote school sex education and related consultations (Lottes, 2002). Accordingly, the main purpose should be to assist students to maintain better health and to decrease harmful health behaviours (Grunbaum et al., 2000). Doyle (2008) proposed that schools must make sure that students obtain the necessary sexual health education that is needed to assist them in clarifying personal and social skills to resist peer pressure and improve interpersonal relationships to engage in safe sex behaviour.

In order to intensify the focus on STI prevention among young people, the Government of India announced the National Adolescent Education Program (AEP; NACO, 2005). Regrettably, the proposal to incorporate compulsory sex education in the school curricula as part of anti-AIDS course was rejected by State Governments of Madhya Pradesh (Gupta, 2007), Maharashtra (International Herald Tribune, 2007), Gujarat (The Hindu, 2007; Times of India, 2007), Kerala and Karnataka (The Hindu, 2007) even before implementation of the program. India's progressive states, were also considering sex education bans (International Herald Tribune, 2007). It was opposed on the

basis of being culturally insensitive and encouraging students to experiment with sex, defeating the very purpose of the campaign which demands intensive work to make sex education compulsory in schools in India. Taken together, researches reveal that sexual knowledge is a significant factor in reducing sexual risk behaviour and thus, diminishing the incidence of STIs. Sex education in schools is imperative in increasing sexual knowledge among adolescents and serves as a predominant preventive measure for sexual risk behaviour and STIs.

Method

Sample

A non-selected sample of 100 female adolescents diagnosed with sexually transmitted infections (STIs) by a qualified gynecologists was taken from private and government hospitals in Shimla. The age range of these participants was 16-22 years ($M \pm SD = 19.1 \pm 6.4$). A matched control group of 100 female adolescents without sexually transmitted infections (STIs), aged 14-18 years ($M \pm SD = 17.9 \pm 5.9$) was selected from Portmore school, Shimla, using Probability Proportional to Size (PPS). Participants in both the groups belonged to middle class socio-economic status. These adolescents were matched case to case in terms of age, educational level, socio-economic status and habitat.

Data Collection

The present study is a mixed method research that involves the collection or analysis of quantitative and qualitative data in a single study. The data is collected concurrently or sequentially and the data is integrated at one or more stages in the process of the research (Creswell, 2010; Tashakkori and Teddlie, 2003). Mixed method approach was carried out in the present study because all methods of data collection have limitations. This approach can

neutralize or cancel out some disadvantages of each method and the strengths of each method can complement the other. On one hand, quantitative method enables collecting limited responses on closed-ended questions, on the other hand, qualitative method enables collecting more descriptive responses to open ended questions thus, providing essential information not covered by quantitative method. For quantitative method, both groups of female adolescents responded to Sexual Health Knowledge Scale and Safe Sex Behaviour Questionnaire. For qualitative method, data was collected using Focus Group Discussions (FGDs) with adolescent females diagnosed with STIs and their comparable group of adolescent females without STIs.

Tools Used

(i) Sexual Health Knowledge Scale (Walsh and Ward, 2009)

The Sexual Health Knowledge Scale is a 37-items scale divided across five broad categories namely, reproductive health, contraception, condom use, sexually transmitted diseases and HIV/AIDS.

(ii) Safe Sex Behaviour Questionnaire (SSBQ) (DiIorio, Persons, Lehr, Adame, Carlone, 1992)

The Safe Sex Behaviour Questionnaire (SSBQ) was designed to measure frequency of use of recommended practices that reduce one's risk of exposure to, and transmission of sexually transmitted infections. The SSBQ is a 24-item questionnaire rated on a four-point scale ranging from 1 (never) to 4 (always).

Procedure

For quantitative analysis, the experimental group of 100 non-selected females diagnosed with STI by a certified gynecologist were selected. The control group of 100 female adolescents without STIs were randomly selected from the enrolment register using

probability proportion to size (PPS) method. After establishing a good rapport with the participants, they were given necessary information regarding the present study. A written consent regarding their participation in the study was obtained from the participants using student assent form and from their parents using parent consent form. Before administration of the scales, all participants were given standard instruction related to each scale.

For the qualitative analysis, two focus group discussions (FGDs) were carried out on adolescent females with sexually transmitted infections (STIs) at private and government hospitals in and outside Shimla. Two focus group discussions were carried out with the comparable group of school students without STIs at Portmore School, Shimla. All the four groups comprised of 10 participants each. Consent was taken from all the participants using Parent Consent Form and Student Assent Form. Group discussions were carried out by following a schedule of semi-structured questions that addressed key areas on sexual knowledge, sexual risk behaviour and other concerns related to sexual behaviour. The same format was used for all the four groups so that they could be compared. The focus group discussions were recorded and later transcribed to identify the key trends and issues in sexual behaviour among adolescents.

Results

The findings of the present study (Table-1) clearly depicts a significant difference between the two groups in terms of sexual knowledge ($df=198$, $t=9.026$, $p<0.01$). The mean score of female adolescents with STIs ($M=13.93$) and without STIs ($M=19.69$) reveals that the latter group possesses greater sexual knowledge when compared to the former group, which explains their susceptibility to STIs. This suggests that female adolescents without STIs

have greater knowledge of general human sexual development, contraceptive methods, male and female reproductive anatomy and sexually transmitted diseases.

Table-1: Sexual Knowledge and Sexual Risk Behaviour in female adolescents with and without STIs

S.No	Variables	Female adolescents with STIs	Female adolescents without STIs	t-value
1.	Sexual Knowledge	Mean: 13.93 SD: 5.594	Mean: 19.69 SD: 3.071	9.026
2.	Sexual Risk Behaviour	Mean: 77.23 SD: 5.274	Mean: 28.14 SD: 10.929	40.452

df=198

**p<0.01

Table 1 indicates a significant difference between the experimental and control group on sexual risk behaviour (df=198, t=40.452, p< 0.01). The group of female adolescents with STIs show higher mean (M=77.23) on sexual risk behaviour as compared to their control counterparts (M=28.14). This means that adolescent females with STIs are more likely to indulge in behaviour that can result in negative consequences for their health such as, participating in unprotected sexual contact, having multiple sexual partners etc.

The findings of focus group discussions (FGDs) revealed the following key themes:

1. Knowledge about STIs/HIV and its prevention

When asked about what is STI/HIV, very few participants in the group revealed their understanding about these infections. When inquired about various preventive measures that

can protect teens from acquiring STI/HIV, the participants suggested that avoiding sexual contact with someone who is infected can be one of the measures to prevent STI/HIV. Using condoms while indulging in sex was another measure reported by the participants that can prevent such infections. Regarding source of

information about STI/HIV among the teens, the participants reported internet was the most accessed source of information about STI/HIV among teens due to its privacy and easy accessibility. Unauthentic magazines also served as a significant source of sexual knowledge. Peers formed another important source of such information. Media was reported as the next important resource providing necessary information regarding the topic. School books were mentioned as a foundation of such knowledge that begins in 8th standard however, the information provided by them is related to human anatomy and physiology. The participants found them insufficient in terms of STI knowledge.

Unfortunately, parents and teachers were found to play insignificant role in providing their wards with such information. The participants reported that parents and teachers often ignore their questions regarding such topics. When asked about how they would prefer to gather information about STI/HIV, the

participants stated that they want their parents and teachers to be more open about such topics and provide them with all the answers to the curious questions they have in mind so that they can make more informed and wise decisions in life. Participants also suggested for a school counsellor who can be the source of such information.

2. Attitudes about condoms

The FGDs intended to assess teen's attitudes about condoms. Participants suggested that teens don't fret about getting an STI/HIV. They intend to use condoms only to avoid pregnancy. About 50% of teens want to use condoms but only 20% of teens actually use condoms. When asked about the reasons for this disparity, participants reported various barriers faced by teens in using condoms. First barrier was unplanned sex which means that the teens indulge in sex unexpectedly, in the spur of the moment. Another barrier reported was embarrassment to procure condoms from shops. They feel that the shopkeeper might insult them or inform their families.

Looking at the 20% of teens who actually use condoms, next question that arose was from where these teens get condoms. The participants reported that teens mostly get condoms from cousins or friends those who are older than them. The participants also reported that teens are using emergency contraceptives such as an iPil very frequently to avoid pregnancy in case of unprotected sex.

Age and STI/HIV

When asked if participants think adolescents are more vulnerable to STI/HIV than adults, participants reported that teens are more vulnerable to such infections due to lack of knowledge, their tendency to experiment and lack of self-efficacy to refuse sex when pressurized by partner.

3. Preventive measures

To conclude the focus group discussions, the participants were asked about their opinion about certain interventions they think that can prevent STI/HIV among teens. The majority of the participants focused on the role of parents and teachers in the prevention of such infections among teens. They stated that parents should talk about sex and its consequences openly with their children. Sex education in schools is another important means to provide necessary information to teens regarding sex and the consequences of early sexual debut. The participants also mentioned the importance of health camps in schools that regularly check health status of teens along with providing them necessary information for prevention and treatment of STI/HIV. They also stated that health professionals should be sensitized regarding the problems faced by teens and how to deal with them more empathetically and unconditionally, if they are seeking treatment. Another important point put forward by the participants was the procurement of condoms that should be made easier for the teens by the government and local medical shops. This will act as an effective preventive measure for STI/HIV.

Discussion

The findings of the study reveal that sexual knowledge and sexual risk behaviour have an opposite effect on disease infliction. While the adolescents with STIs had lesser knowledge, these adolescents were more prone to sexual risk behaviour than their counterparts. Adolescent females with STIs report significantly lower sexual knowledge ($M=13.93$) as compared to adolescent females without STIs ($M=19.69$). This signifies that adolescent females with STIs possess lower knowledge on the prevention, infection, causes and consequences of STIs than their control

counterparts. This lack of information about sexual knowledge explains their vulnerability to sexually transmitted infections.

Numerous researches on sexually transmitted infections support this finding. Knowledge and awareness are determinants of health-related behaviour and has been suggested in various health behaviour theories such as the Theory of Reasoned/Planned Action (TRA/PA, Fishbein and Ajzen 1975, Ajzen 1985), the Health Belief Model (HBM, Rosenstock, 1974) and the Information-Motivation-Behaviour Skills model (IMB; Fisher et al. 1996; Fisher and Fisher 1992).

Chadambuka, Chimusoro, Maradzika, Tshimanga, Gombe, and Shambira (2011) conducted a study on factors associated with contracting sexually transmitted infections among patients in Zimbabwe. The study group included any person above 15 years diagnosed with STIs and patient controls without any STIs. The findings revealed that the patients with STIs had lower sexual knowledge as compared to their controls.

To explore the knowledge of STIs and condom use behaviour among men and women who have been medically treated and not treated for STIs, Dalal, Shabnam and Wang (2014), conducted a cross-sectional study and found that a substantial minority of people in India (46% female and 13% male respondents) who had been treated for STIs had little information of STIs prior to their treatment. Even after receiving treatment respondents reported not having enough information about STIs. The authors further reported that patients with STIs were of the opinion that sex education should be added to school curriculum for a better understanding of the diseases in the general population. A high proportion of the participants responded positively to sexual education for boys and girls in schools, including education

about condom use. Earlier, Chhabra, Ghosh and Sharma (2007) reported similar findings.

Araújo, Teva and Bermúdez (2014) recently found that greater knowledge of STIs/HIV predicted older age at vaginal sex initiation and higher condom use in the first vaginal sexual contact. These results are consistent with previous studies which concluded that knowledge of STIs/HIV contributed to reducing sexual risk behaviours (Ramiro et al., 2013; Bermúdez et al., 2012). This reflects that even if the sexual knowledge is not domain specific, it results into reduction of risk behaviour.

McManus and Dhar (2008) conducted a study in India and indicated that knowledge about STIs other than HIV/AIDS was very poor among adolescent girls. More than one third of students in this study had no accurate understanding about the signs and symptoms of STIs. The study indicated that for adolescent students the internet, media, friends, books and magazines were the main sources of information regarding safe sex and HIV/STIs. Often students were confused or misinformed due to erroneous information received from unauthentic sources. Therefore, evidence-based sex education must be a major strategy in school-based programs, with user friendly resources available to students. The only comparable study was conducted earlier in Kerala (Lal, Vasan, Sarma and Thankappan, 2000) where college students had 34% awareness of the symptoms of STIs. Young sexually active people need to be aware of the risk of STIs and correct use of condoms to prevent STIs transmission.

Another finding of the present study indicates that adolescent females with STIs engage in higher sexual risk behaviour as compared to their control counterparts. This suggests that, adolescent females with STIs take more risk in terms of using condoms sporadically, indulge in high-risk behaviours

with multiple sexual partners, intemperance, engage in homosexual intercourse and ignore their partner's potentially risky sexual history. Adolescent females without STIs, on the other hand, are cautious about multiple sexual partners, condom use and informative about their partner's potentially risky sexual history and sexual knowledge.

Review of previous researches on sexual risk behaviour suggests similar findings. Chadambuka et al. (2011) evaluated factors associated with contracting sexually transmitted infections among patients. The experimental group comprising of participants diagnosed with STIs revealed that risk factors for males were sex under the influence of alcohol, relationships less than 1 year, no condom use at first intercourse and paying for sex. For females the risk factors were non-use of condom at first intercourse, and relationships less than one year. This indicates that sexual risk factors vary across gender, males being higher sexual risk takers than the females.

Test, Mehta, Handler, Mutimura, Bamukunde and Cohen (2011) assessed sexual risks among youth with HIV. More than 50% participants reported inconsistent condom use. The authors observed there are multiple factors for non-use of condoms which include not having a condom, feeling less sexual pleasure when they or their partner use a condom and trust deficit in relationships where participants felt that using a condom is a sign of not trusting your partner and if they asked to use a condom, their partner would think they engage in sex with multiple partners. This suggests that a comprehensive module that can address their issues would help increasing condom use and reducing risky sexual behaviour.

While some studies (Marks, Crepaz, Senterfitt, et al., 2005; Allen, Meinen-Derra, Kautzmana, et al., 2003) have found a reduction in sexual risk taking among people living with HIV/AIDS (PLWHA) after diagnosis, however

other studies (Bell, Atkinson, Mosier, et al., 2007; Golden, Wood, Buskin, et al., 2007; Kalichman, 2000) have documented high-risk sexual behaviours among PLWHA who are aware of their sero-status, especially those with partners who are also HIV-positive. Findings of several investigators from other African nations regarding youth living with AIDS are also consistent to that of the present study (Obare and Birungi, 2010; Birungi, Mugisha, Obare and Nyombi, 2009; Anand, Shiraishi, Bunnell Anand, Shiraishi, Bunnell et al., 2009).

Satterwhite, Kamb, Metcalf et al. (2007) reported that patients attending STI clinics report engaging in sexual practices that put them at high risk of infection (i.e. numerous lifetime sexual partners, more than one recent sexual partner, frequent unprotected vaginal or anal intercourse), and high rates of STIs, including HIV. Similar findings were reported earlier (Weinstock, Dale, Linley and Gwinn, 2002).

The present study highlights the lack of sexual knowledge among teens and their resorting to unauthentic sources such as internet, magazine, peers and media for gaining insight into knowledge about sex. It also showcases the negligible role played by parents and teachers in providing their wards with correct information regarding sexual knowledge. Therefore, the present study depicts the importance of sex education in schools. Sex education not only increases students' awareness regarding STIs but also reduces their sexual risk taking behaviour. Necessary steps must be taken towards incorporating sex education in schools that can change the rising trend towards STIs among adolescents in India and abroad. Other studies also provide evidence in support of provision of sexuality education (Watsa, 1993).

References

- Ajzen, I. (1985). From intention to actions: A theory of planned behaviour. In J. Kuhl and J. Beckman (Eds.), *Action control: From cognition to behaviour* (pp. 11-39). Heidelberg: Springer.
- Allen, S., Meinzen-Derra, J., Kautzmana, M., et al. (2003). Sexual behaviour of HIV discordant couples after HIV counseling and testing. *AIDS*, 17: 733-740.
- Anand, A., Shiraishi, R.W., Bunnell, R.E., et al. (2009). Knowledge of HIV status, sexual risk behaviours and contraceptive need among people living with HIV in Kenya and Malawi. *AIDS*, 23: 1565-1573.
- Araújo, L.F., Teva, I. and Bermúdez, M.P. (2014). Psychological and socio-demographic variables associated with sexual risk behaviour for sexually transmitted infections/HIV. *International Journal of Clinical and Health Psychology*, 14: 120-127.
- Ayranci, U. (2005). AIDS knowledge and attitudes in a Turkish population: an epidemiological study. *BMC Public Health*, 5: 95.
- Barnett, T. and Parkhurst, J. (2005). HIV/AIDS: sex, abstinence, and behaviour change. *The Lancet Infectious Diseases*, 5(9): 590-593.
- Bell, D.C., Atkinson, J.S., Mosier, V, et al. (2007). The HIV transmission gradient: relationship patterns of protection. *AIDS Behaviour*, 11: 789-811.
- Bermúdez, M. P., Teva, I., Ramiro, M. T., Uribe-Rodríguez, A. F., Sierra, J. C. and Buéla-Casal, G. (2012). Knowledge, misconceptions, self-efficacy and attitudes regarding HIV: Cross-cultural assessment and analysis in adolescents. *International Journal of Clinical and Health Psychology*, 12: 235-249.
- Birungi, H, Mugisha, J.F, Obare, F. and Nyombi, J.K. (2009). Sexual behaviour and desires among adolescents perinatally infected with human immunodeficiency virus in Uganda: implications for programming. *Journal of Adolescent Health*, 44: 184-187.
- Chadambuka, A., Chimusoro, A., Maradzika, J.C., Shimanga, M.T., Gombe, N.T. and Shambira, G. (2011). Factors associated with contracting sexually transmitted infections among patients in Zvishavane urban, Zimbabwe; 2007. *African Health Science*, 11(4): 535-542.
- Cherie, A. and Berhane, Y. (2012). Knowledge of Sexually Transmitted Infections and Barriers to Seeking Health Services among High School Adolescents in Addis Ababa, Ethiopia. Cherie and Berhane, *Journal of AIDS and Clinical Research*, 3:5.
- Cherie, A., Mitkie, G., Ismail, S. and Berhane, Y. (2005). Perceived sufficiency and usefulness of IEC materials and methods related to HIV/AIDS among high school youth in Addis Ababa, Ethiopia. *African Journal of Reproductive Health*, 9: 66-77.
- Chhabra, R., Ghosh, S.N. and Sharma, S.K. (2007). Need assessment of an alcohol and HIV Prevention Education Program for Youth in North Western Himalayas. *Journal of the Indian Academy of Applied Psychology*, 33(1): 5-14.
- Choi, H.S., Kang, S.J. and Yeau, S.H. (2004). Content Analysis of Sex Education in the Middle School Science Textbooks and Survey on Middle School Students' Knowledge levels and Demands of Sex Education. *Korean Journal of Biological Education*, 32: 236-246.
- Clark, L.R., Jackson, M. and Allen-Taylor, L. (2002). Adolescent knowledge about

- sexually transmitted diseases. *Sexually Transmitted Disease*, 29(8): 436-443.
- Creswell, J. (2010) "Mapping the developing landscape of mixed methods research", in *Sage Handbook of Mixed Methods in Social and Behavioural Research*, Tashakkori, A. and Teddlie, C. (Eds) 2010, Sage, California.
- Dalal, K., Shabnam, K.J. and Wang, Shu-Mei. (2014). Knowledge and Perception of Sexual Health Education and Condom Use among STI Patients in India. *International STD Research and Reviews*, 2(2): 74-87.
- Dilorio, C., Parsons, M., Lehr, S., Adame, D and Carlone, J. (1992). Measurements of safe sex behaviour in adolescents and young adults. *Nurse Researcher*, 41(4): 203-208.
- Downs, J.S., Bruine de Bruin, W., Murray, P.J., Fischhoff, B. (2006). Specific STI knowledge may be acquired too late. *Journal of Adolescent Health*, 38: 65-67.
- Doyle, J. (2008). Improving sexual health education for young people with learning disabilities. *Pediatric Nursing*, 20: 26-28.
- Eaton, D.K., Kann, L., Kinchen, S., Shanklin, S., Ross, J., et al. (2010) Youth risk behaviour surveillance- United States, 2009. *Morbidity and Mortality Weekly Report Surveillance Summaries*, 59: 1-142.
- Fishbein, M. and Ajzen, I. (1975). *Belief, attitude, intention, and behaviour: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Fisher, J. and Fisher, W. (1992). Changing AIDS risk behaviour. *Psychological Bulletin*, 111: 455-474.
- Fisher, J.D., Fisher, W.A., Misovich, S.J., Kimble, D.L. and Malloy, T.E (1996). Changing AIDS-risk behaviour. Effects of an intervention emphasising AIDS-risk reduction information, motivation and behavioural skills in a college students populations, *Health Psychology*, 15(2): 114-123.
- Garside, R., Ayres, R., Owen, M., Pearson, V.A.H. and Roizen, J. (2001). They never tell you about the consequences: young people's awareness of sexually transmitted infections. *International Journal of STD and AIDS*, 12: 582-588.
- Garside, R., Ayres, R., Owen, M., Pearson, V.A.H. and Roizen, J. (2001). They never tell you about the consequences: young people's awareness of sexually transmitted infections. *International Journal of STD and AIDS*, 12: 582-588.
- Gokengin, D., Yamazhan, T., Ozkaya, D., Aytug, S., Ertem, E., Arda, B. and Serter, D. (2003). Sexual knowledge, attitudes, and risk behaviours of students in Turkey. *Journal of School Health*, 73: 258-263.
- Golbasi, Z., and Taskin, L. (2009). Evaluation of school-based reproductive health program for adolescent girls. *International Journal of Adolescent Medical Health*, 21(3): 395-404.
- Golden, M.R., Wood, R.W., Buskin, S.E., et al. (2007). Ongoing risk behaviour among persons with HIV in medical care. *AIDS Behaviour*, 11: 726-735
- Grunbaum, J.A., Kann, L., Williams, B.I., Kinchen, S.A., Collins, J.L., Baumler, E.R. and Kolbe, L.J. (2000). Surveillance for characteristics of health education among secondary schools-school health education profiles, 1998. *Morbidity and Mortality Weekly Report*, 47: 1-31.
- Gupta, S. (2007). Chauhan bans sex-education classes in MP. *The Times of India*. Bhopal.

- International Herald Tribune (2007). Report: Indian state rejects introduction of sex education in schools. International Herald Tribune: AsiaPacific, Paris.
- Kalichman, S.C. (2000). HIV transmission risk behaviours of men and women living with HIV-AIDS: prevalence, predictors, and emerging clinical interventions, *Clinical Psychology*, 7: 32-47.
- Kirby, D. (2002). The impact of schools and school programs upon adolescent sexual behaviour. *J Sex Res.*, 39: 27-33.
- Lal, S., Vasan, R., Sarma, P. and Thankappan, K. (2000). Knowledge and attitude of college students in Kerala towards HIV/AIDS, sexually transmitted diseases and sexuality. *National Medical Journal of India*, 13: 231-236.
- Lillie, T.L., Pulerwitz, J. and Curbow, B. (2009) Kenyan in-School Youths' level of understanding of abstinence, being faithful and consistent condom use terms: Implications for HIV-prevention programs. *Journal of Health Communication*, 14: 276-292.
- Lottes, I.L. (2002). Sexual health policies in other industrialized countries: are there lessons for the United States? *Journal of Sex Research*, 39: 79-83.
- Marks, G., Crepaz, N., Senterfitt, J.W., et al. (2005). Meta-analysis of high-risk sexual behaviour in persons aware and unaware they are infected with HIV in the United States: implications for HIV prevention programs. *Journal of Acquired Immune Deficiency Syndrome*, 39: 446-453.
- McManus and Dhar (2008). Study of knowledge, perception and attitude of adolescent girls towards STIs/HIV, safer sex and sex education: (A cross sectional survey of urban adolescent school girls in South Delhi, India). *BMC Women's Health*, 8: 12.
- Mmari, K.N., Oseni, O. and Fatusi, A.O. (2010) STIs Treatment Seeking Behaviours among youth in Nigeria: Are there gender differences? *International Perspectives on Sexual and Reproductive Health*, 36: 72-79.
- Molla, M., Emmelin, M., Berhane, Y. and Lindtjørn, B. (2008). Readiness of youth in rural Ethiopia to seek health services for sexually transmitted infections. *African Journal of AIDS Research*, 8: 135-146.
- Murphy, E.M., Greene, M.E., Mihailovic, A. and Olupot-Olupot, P. (2006). Was the "ABC" Approach (abstinence, being faithful, using condoms) responsible for Uganda's Decline in HIV? *Public Library of Science Med*, 3: 379.
- National Aids Control Organisation. (2005). United Nations General Assembly Special Session On HIV/AIDS India Report: Progress Report on the Declaration of Commitment on HIV/AIDS. New Delhi: National AIDS Control Organization, Ministry of Health and Family Welfare, Government of India.
- Nsuami, M.J., Sanders, L.S. and Taylor, S.N. (2010). Knowledge of sexually transmitted infections among high school students. *American Journal of Health Education*. 41(4): 206-217.
- Nzioka, C. (2001). Perspectives of adolescent boys on the risks of unwanted pregnancy and sexually transmitted infections: Kenya. *Reproductive Health Matters*, 9: 108-117.
- Obare, F. and Birungi, H. (2010). The limited effect of knowing they are HIV-positive on the sexual and reproductive experiences and intentions of infected adolescents in Uganda. *Population Studies*, 64: 97-104.

- Ramiro, M.T., Teva, I., Bermúdez, M.P. and Buéla-Casal, G. (2013). Social support, self-esteem and depression; Relationship with risk for sexually transmitted infections/ HIV transmission. *International Journal of Clinical and Health Psychology*, 13: 181-188.
- Renju, J.R., Andrew, B., Medard, L., Kishamawe, C., Kimaryo, M., Changalucha, J. And Obasi, A. (2011). Scaling up adolescent sexual and reproductive health interventions through existing government systems? A detailed process evaluation of a school-based intervention in Mwanza region in the northwest of Tanzania. *Journal of Adolescent Health*, 48: 79-86.
- Rosenstock, I.M. (1974). Historical Origins of the Health Belief Model. *Health Education Monographs*, 2: 328-335.
- Samkange-Zeeb, F.N., Spallek, L. and Zeeb, H. (2011). Awareness and knowledge of sexually transmitted disease (STDs) among school-going adolescents in Europe: a systematic review of published literature. *BMC Public Health*, 11: 727.
- Satterwhite, C.L., Kamb, M.L., Metcalf, C., et al. (2007). Changes in sexual behaviour and STD prevalence among heterosexual STD clinic attendees: 1993–1995 versus 1999–2000. *Sexually Transmitted Diseases*, 34: 815-819.
- Special Correspondent (2007). Horatti rules out sex education in schools. *The Hindu*. Bangalore.
- Special correspondent (2007). No more sex education in Gujarat schools. *Times of India*.
- Tashakkori, A. and Teddlie, C. (2003). *Handbook of Mixed Methods in Social and Behavioural Research*. Thousand Oaks: Sage.
- Test, F.S., Mehta, S.D., Handler, A., Mutimura, E., Bamukunde, A.M. and Cohen, M. (2011). Gender inequities in sexual risks among youth with HIV in Kigali, Rwanda. *International Journal of STD and AIDS*, 23: 394-399.
- Trani, F., Gnisci, F., Nobile, C.G. and Angelillo, I.F. (2005). Adolescents and sexually transmitted infections: Knowledge and behaviour in Italy. *Journal of Paediatrics and Child Health*, 41: 260-264.
- Walsh, J. L. and Ward, L. M. (2009). Magazine reading and involvement and young adults' sexual health knowledge, efficacy, and behaviours. *Journal of Sex Research*, 46: 1-16.
- Watsa, M.C. (1993). *Premarital sexual behaviour of urban educated youth in India*. Paper presented at the workshop on sexual aspect of AIDS/STD prevention in India. Bombay, November, 23-27.
- Weinstock, H., Dale, M., Linley, L. and Gwinn, M. (2002). Unrecognized HIV infection among patients attending sexually transmitted disease clinics. *American Journal of Public Health*. 92: 280-283.

