Middle East Journal of Nursing

JUNE 2008

VOLUME 2 ISSUE 3

ISSN 1834-8742

Editorial

Original Contribution & Clinical Investigation

Review Articles

Community Nursing

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A paper from Iran looks at the effect of an Iranian herbal drug in the treatment of primary dysmenorrhoea. A randomised, double-blind, placebo-controlled pilot trial was carried out among 180 female students at Isfahan University dormitory aged 18-27 years, who suffered from primary dysmenorrhoea. The authors found statistically significant reductions in pain score and pain duration in SCA ($p<0.001$) and mefenemic acid ($p<0.01$) groups. The decrease in pain score was reflected by a significant reduction in another drug used among the treatment groups compared with placebo The magnitude of the reduction was significantly greater in the SCA group than in mefenamic acid and placebo. Both of the drugs effectively relieved menstrual pain as compared with the placebo. More clinical trials are needed for efficacy of this herbal drug

Dr. Md. Aminul Hoque writes that one of the important aspects of human development is education, both at the individual and the collective levels. Higher level of education means higher jobs, implying higher standards of living. In this paper attempts are made to analyze the educational characteristics of the female workers who work in different types of industries at and around Rajshahi city corporation area in Bangladesh. In all 891 workers are interviewed and the majority (20.20%) are found to work in sericulture industries followed by cottage industries (18.2%). Of the 891 women 52.1% are literate. Of the literate females 51.5% have primary level of education, 42.7% secondary level and only 5.8% above secondary level. The majority of literate females are found to work in sericulture industries (32.3%) followed by textile industries (19.6%). They find strong external effects of education on individual earnings.

A cross sectional study from Iran looked at International passengers as one of the most high risk groups to be exposed to AIDS that must have been aware about the dangers of this disease. The destination is not important but the passengers' knowledge is very important.

Objectives were to determine the knowledge of Non-Pilgrimage passengers, who are on the point of leaving for abroad, about the ways of AIDS transmission and its prevention in Tehran's International airport? Findings showed that passengers did not have sufficient knowledge about AIDs (transmission and prevention of AIDS). So, their health knowledge needs to be increased for health protection. Therefore training is one of the ways which can be used for increasing passengers' knowledge.

Kobra Rezaei, Yadollah Sahranavar and Maryam Nooritajer looked at the efficacy of Betadine and Decosept for surgical hand scrub on Bacterial Colony Count (BCC).

Nowadays in most operating rooms in developed countries, the surgical team, scrubs with an efficient agent for short time, while, in IRAN, the surgical team uses conventional and routine hand scrub (with Betadine more than 3 min). The aim of this study was to compare efficacy of Betadine and an alcoholic agent (Decosept) on BCC. Results: BCC frequency was different for immediate effect of Betadine and Decosept (38 & 25), and also for 2 h after scrub (72 & 40).

The mean of BCC reduction immediately after Betadine and Decosept scrub were significantly different ($P=0.011$). Conclusion: The results showed that the alcohol agent (Decosept) was more efficient on BCC reduction. They suggest more use of the alcohol agents for hand surgical scrub instead of others.

An article on Prevalence of Contraceptive Use in Naogaon District of Bangladesh assesses the knowledge and use of contraception of ever-married women of a district of Bangladesh namely Naogaon. The study uses data collected from some specific rural and urban areas of Naogaon district, Bangladesh. The information was collected from 800 ever-married women by interview method. Bivariate analysis and logistic regression analysis were adopted and the analysis revealed that although the knowledge of contraceptive has been conveyed to the majority of couples in Bangladesh, the current use rate of contraception is high enough (above ninety percent) and most of them currently use modern methods. The most prevalent method of contraception being the OCP. The level of current contraceptive use is higher in urban areas than in rural areas however, this gap is very narrow. Logistic analysis shows that, education of both respondent and husband, visit of family planning workers, place of residence, desire for additional children, talked to husband about family planning and number of living children have net significant effect on the current use of contraception.

Soad mahfoozpour, Maryam Jadid Milani, Maryam Nooritajer did a descriptive study which looked at one of the most vulnerable groups of the community, under 6 years old children, considered as a vital resource, in assuring a good future for the country. This study was conducted to assess the quality of provided care services for 0-6 years children, in Urban Health Centers (UHCs), of Shaheed Beheshti University of Medical Sciences & Health Services (SBUMS), in 2002-2003.

Conclusions regarding the importance of under 6 years old children's health, showed poor quality of care provided for them, more research is suggested to assess the impact of interventions on quality and quantity of children health care services.

THE EFFECT OF AN IRANIAN HERBAL DRUG ON PRIMARY DISMENORRHOEA (A CLINICAL CONTROLLED TRIAL)

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ABSTRACT

Background: To study the effect of an Iranian herbal drug in the treatment of primary dysmenorrhoea: a randomised, double-blind, placebo-controlled pilot trial among 180 female students settled at Isfahan University dormitory aged 18-27 years who suffered from primary dysmenorrhoea.

Methodology: Participants randomly divided into three groups (herbal drug, mefenamic acid and placebo). The herbal drug (SCA) group were given 500 mg of SCA (Saffron, Anise and Celery Seed extracts highly purified) three time a day, for three days starting from the onset of bleeding or pain. Participants were followed with two to three cycles from beginning of menstruation and continued through the whole three days of bleeding. Main outcome measures were the severity and duration of pain, at two and three months. A visual analogue scale (VAS) was used to record pain. Overall-pain was the average pain intensity among days in pain.

Results: There were statistically significant reductions in pain score and pain duration in SCA ($p<0.001$) and mefenamic acid ($p<0.01$) groups. The decrease in pain score was reflected by a significant reduction in another drug use among the treatment groups compared with placebo The magnitude of the reduction was significantly greater in the SCA group than in mefenamic acid and placebo.

Conclusion: Both of the drugs effectively relieved menstrual pain as compared with the placebo .More clinical trials are needed for efficacy of this herbal drug.

Key words: Marriage migration Mathematical modeling Polynomial Variance explained (R2) Cross validity prediction power (CVPP) F-test.

Introduction

Primary dysmenorrhoea refers to the occurrence of painful menstrual cramps of uterine origin during menstruation, in the absence of an identifiable pathologic lesion and is a common gynecological complaint. Disturbances of dysmenorrhoea are a major medical problem not only for women but also for their families and health services.

The pain is believed to be related to prostaglandin (PG)[1-4]. In the pathogenesis of dysmenorrhoea, prostaglandins and arachinodonic acid metabolites play an important role and women with dysmenorrhoea have a relatively high concentration of PGF2a in menstrual fluid[5]. Prostaglandin F2a (PGF2a) and PGE2 stimulate uterine contractions and cervical narrowing and increase vasopressin release, leading to ischemia and pain, and suppression of PG synthesis has become the main treatment[2,4,6,7].

Common treatment for dysmenorrhoea is medical therapy such as non-steroidal anti-inflammatories (NSAIDs) or oral contraceptive pills (OCPs) which both work by reducing contractions of the uterus[7,8]. Many consumers are now seeking alternatives to conventional medicine. Research into the menstrual cycle suggest that nutritional intake and metabolism may play an important role in the cause and treatment of menstrual disorders[6,9].

The aim of this clinical trial study was to compare the effect of an Iranian herbal Medicine (SCA) for the treatment of primary dysmenorrhoea.

Methodology

The study subjects were single female students 17-30 years old at Isfahan Medical University Dormitory, Students who fulfilled the criteria for admission who were willing and able to participate in the trial and had given their informed consent were included in the study.198 students who complained of primary dysmenorrhoea agreed to participate in the present study and responded to a self-administered questionnaire that asked about demographic characteristics, menstrual history, smoking, diet, exercise, and past medical and reproductive histories.

The response rate was 93% (184 subjects). The measured primary outcome was intensity of menstrual pain which was determined by a visual analogue scale (VAS) (0 = no pain, 10= unbearable pain). Eligible students completed the VAS before randomisation. All students with primary dysmenorrhoea had

a physical examination by the investigator. Of the remaining 184 students 4 students were excluded due to doubtful evidence of secondary dysmenorrhoea.

Randomisation was determined on a 1:1:1 basis using random number tables. Stratification was determined according to the severity of the pain (mild 0-3; moderate 3.1-6; severe 6.1-10). Each student was randomly assigned to either the placebo, herbal drug (SCA) or mefenamic acid group (60 subjects for every group). Both drugs and also placebo were packed in similar capsules (blue capsules) and packaged in similar wrappings. 27 of the SCA capsule packages in three separate packages contained 9 capsules for one menstruation cycle, each capsule containing 500mg of SCA (Saffron, Anise and Celery Seed extracts) highly purified.

Placebo and mefenamic acid (250 mg) packages contained the same number of tablets of similar color and shape and in similar wrappings. The study was double-blinded and the allocation was known neither to the students, nor to the health centre which administered the medication. The randomisation code was known only to the pharmacologist investigator who made and wrapped the drugs. Each student took three capsules orally daily for three days (from beginning of day 1 until the third day of menstruation).

The students were permitted to consume another drug in addition to the allocated treatment in case of continued pain but finally these students were excluded in data analysis. Changes in the severity and the duration of pain, of clinical trial subjects at two and three months were compared between the groups. Study outcome was a visual analog pain intensity given as mean score and 95% confidence interval.

Statistical comparisons between groups were determined using Mann-Whitney U test, m2 test or unpaired t test, and within-group comparisons were determined with paired t test or Wilcoxon matched pairs rank sum test for paired data as appropriate. m^2 and Mann-Whitney U tests were used to analyse differences in categorical data between groups.

This study was undertaken with the approval of the Isfahan Medical University ethics committee, and written consent was obtained from the students and the clinical trial permitted by Iran Ministry of Health, (registration letter no: 5.92,22773; 8.10.200).

Results

A total of 198 female students between ages 18-30 (20.6 mean ages) who complained of primary dysmenorrhoea. 180 were randomised (60 in every group). Of the 60 student girls, in the SCA group three subjects were excluded from the study analysis due to withdrawal or lost to follow u. In the mefenamic acid group 5 students were excluded from the study analysis due to the loss of two students girls and 3 discontinuing their medication. In the placebo group 9 subjects were excluded (4 with severe pain) due to discontinuation of medication and 5 lost to follow up of the trial. Finally, the analysis was conducted on the 163 subjects.

There were no significant differences in any variable between the two groups at randomisation (Table 1). Mean duration of menstruation was 6.6+/-1.4 days with the mean cycle days of

29+/-3. The findings observed during menses were as follows: headache in 32.7%, nausea in 54%, vomiting in 21%, diarrhea in 13.6%, fatigue in 92.5% and leaving the daily tasks undone was reported in 63% of the cases. Table 2-3 shows the outcomes at two and three months for SCA and mefenamic acid with placebo.

There were statistically significant reductions in pain score and pain duration in SCA and mefenamic acid medication groups. Also the measure of decrease in pain intensity was greatest in the subgroup with severe dysmenorrhoea treated with SCA.

The decrease in pain score was reflected by a significant reduction in another sedation drug used among the treatment groups compared with placebo (Table 4). The magnitude of the reduction was significantly greater in the SCA group than in the mefenamic acid and placebo groups.

Both of the drugs effectively relieved menstrual pain as compared with the placebo (Tables 2-3). The students taking SCA TDS doses of 500mg decreased the pain intensity in a manner similar to mefenamic acid.

Also the herbal drug (SCA) had a more potent effect than mefenamic acid on severe dysmenorrhoea (Tables 2, 3, 5).

No complication was reported in the SCA treated group, but one case reported nausea due to mefenamic acid.

Conclusion

We have shown that the combination of the Saffron, anise and celery seed (SCA) reduced the severity and the duration of pain from primary dysmenorrhoea. All of these effects can be attributed to the reduction of PG synthesis by this SCA acting as an anticolic and anti-PG. There were no side effects and this confirms the report of Gill and Lan Lan Liang Yeh in the folk medicine that the rural people use the plants for dysmenorrhoea[10] .Saffron (Crocus sativus) is a conventional effective medicine in improving blood circulation, curing bruises and having an anti spasm effect. It has low biochemical toxic effects on animals[11,12]. Anise and Celery Seed are able to relax smooth muscle cells and ease the muscle spasms that are the immediate cause of pain of those women who suffer from primary dysmenorrhoea[13].

The most common menstrual disorder is dysmenorrhoea which was reported by over half

of adult menstruating women in moderate to severe intensity, The complaint is associated

with significant levels of disability. The majority of sufferers took analgesics or bed rest to cope with the pain and there was a linear association between severity of pain and its impact[14].

Primary dysmenorrhoea occurs as a result of PG-induced myometrial contractions. The PGs also contributes to uterine ischaemia, and sensitisation of afferent nerve fibres to painful stimuli. NSAIDs are an effective treatment but are contraindicated in some women, and only moderately

effective in many women. The combined contraceptive pill (COC) suppresses the progesterone-driven proliferation of the secretory endometrium during the luteal phase, thus resulting in a decrease in PG synthesis and the volume of menstrual fluid. The COC is an accepted treatment for dysmenorrhoea in non-adolescent women, but the efficacy of low dose COC pill in the treatment of adolescent dysmenorrhoea has yet to be determined[8,15,16].

We have shown that the SCA and Mefenamic acid both have adequate analgesic effects in dysmenorrhoea. The SCA was found to be more effective than mefenamic acid for severe pain relief in dysmenorrhoea.

The SCA can be used safely and effectively for primary dysmenorrhoeal. It may have a higher potency than mefenamic acid in the dosages used for this study, especially for reducing severe dysmenorrhoea. However our results indicate that SCA was three time superior to placebo and met patient's individual demands much better than mefenamic acid and placebo.

As a conclusion SCA taken at a dose of 500 mg daily for three days from the beginning of menstruation significantly reduces the severity and duration of pain due to primary dysmenorrhoea. These data suggest that SCA represents a safe and effective treatment for primary dysmenorrhoea but more clinical trials are needed.

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Table 1. Characteristics of the students female at randomisation. Values are mean [SD], median {IQR} or n(%)

	Mefenamic acid (n =60)	Placebo (n=60)	Herbal drug(SCA) (n=60)
Age at randomisation (years)	20.5 (3.3)	20 (3)	20.6(3.2)
Age at menarche	13.7 (1.6)	13.76 (1.6)	13.8 (1.8)
Age at onset of dysmenorrhoea	14.4 (1)	14 (1)	14.3 (1)
Pain score			
(0-3) mild	11(8.3%)	11 (8.3%)	n=12(20%)
3.1 – 6 (moderate)	39(66%)	40 (66.6%)	n=38(63.3%)
6.1 – 10 (severe)	10(6.6%)	9 (15%)	no= 9 (15%)
Pain duration (hours)	19(21)	18.5 (20)	19 (20)

Table 2. Effects of herbal drug (SCA) and placebo on pain scores and duration. Values are median [IQR] or mean (SD)

	Herbal drug(SCA) (n = 57)	Placebo (n = 51)	P
Pain score			
before treatment	5.3 [2–8]	5.3[2-8]	NS
at 2 months	3 [0–5]	5 [2– 6]	<0.001
Pain score at 3 months	0.5 [0–2]	6 [4–8]	<0.001
Duration of pain (hours)			
at 2 months	2.3 (0-5)	16.2 (5-17)	<0.001
at 3 month	2.4 (0-6)	15.4 (9-16)	<0.001
using other sedation drugs	6.5 (4-6)	60 (31-33)	<0.0001

Table 3. Compare of the effects of mefenamic acid and placebo on pain scores and duration. Values are median [IQR] or mean (SD)

	Mefenamic acid (n = 55)	Placebo (n = 51)	P
Pain score			
before treatment	5.45 [2-8]	5.3 [2-8]	NS
at 2 months	3.6 [2-6]	5 [2– 6]	<0.01
Pain score at 3 months	2.4 [1-5]	6 [4– 7]	<0.01
Duration of pain (hours)			
at 2 months	3 [1-5.5]	16.2 [5-17]	<0.01
at 3 month	3 [1-6]	15.4 [9-16]	<0.001
using other sedation drugs	12.5 [5-8]	60 [31-33]	<0.01

Table4. Percentage of students who did feel pain after receiving the treatment and taken another sedation drugs

treatment	cycle 1	cycle 2	cycle 3
Placebo % (n)	60(33)	60.7(31)	60(33)
Mefenamic acid	16.3(9)	4.5 (8)	20(10)
SCA	7(4)	105 (6)	18 (5)

Table 5. Compare of the pain intensity in 3 groups after treatment

Pain intensity / Groups	No pain (0)		Mild (1-3)		Moderate (3.1-6)		Severe (6.1-10)		P
	%	n	%	n	%	n	%	n	
SCA (n=57)	35	20	36.8	21	21	12	7	4	P<0.001
Mefenamic acid (n=55)	18	10	41.8	23	29	16	11	6	P<0.01
Placebo (n=51)	3.92	2	29.4	15	55	28	9.8	5	NS

EFFICACY OF BETADINE AND DECOSEPT FOR SURGICAL HAND SCRUB ON BACTERIAL COLONY COUNT (BCC)

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ABSTRACT

Introduction: Nowadays in most operating rooms in developed countries, the surgical team, scrubs with an efficient agent for a short time, while, in Iran often the surgical team uses conventional and routine hand scrubbing (with Betadine more than 3 min). The aim of this study was to compare efficacy of Betadine and an alcoholic agent (Decosept) on BCC.

Methods: Twenty cases were selected from operating room Scrub Nurses. Firstly, all subjects washed their hands for 1 minute with non-antibacterial soap. Then, in the first stage, each subject scrubbed their hands with Betadine (Povidone Iodine 7.5 %) for 3 minutes and dried by sterile towel after rinse. Bacterial post-value I (immediate effect) was obtained for one hand and the other hand was gloved for 2 hours.

After the removing the gloves, a second post-value-II, was obtained for sustained effect. After one week, for second stage, all subjects first, washed their hand and the bacterial pre-value was obtained such as in the first stage. Then, each subject scrubbed with Decosept by using as many portions as necessary to keep hands wet for 3 min (10-12 ml).

Bacterial post-value I (immediate effect) was obtained for one hand and the other hand was gloved for 2 hours. After removing gloves, a second post-value II was obtained for sustained effect.

Results: BCC frequency was different for immediate effect of Betadine and Decosept (38 & 25), and also for 2 hours after scrubbing (72 & 40). The mean of BCC reduction immediately after Betadine and Decosept scrub were significantly different (P=0.011).

Conclusion: The results showed that the alcohol agent (Decosept) was more efficient on BCC reduction. We suggest more use of the alcohol agents for hand surgical scrub instead of others.

Key words: Betadine, Decosept, Surgical Scrub, Bacterial Colony Count; Efficacy of Betadine and Decosept for surgical hand scrub on Bacterial Colony Count (BCC).

Introduction

One of the most important health and medical care activity to prevent the transmission of nosocomial infection is hand washing. Medical hand scrub methods are used for washing and disinfecting of hands in non-invasive processes; but for invasive processes, such as surgery, hands should be disinfected with the surgical hand scrub method. The aim of the surgical hand scrub is removing dirt, killing the transient skin bacteria, and prevention of growth of resident skin bacteria of hand[1,2]. Contagious Disease Committees alway introduces new methods for reduction of contamination to prevent nosocomial infections[3].

Agents used for disinfection of hands before surgery should have powerful and quick antiseptic effects, without irritant and allergen effects for skin, and with persistent efficacy for prevention of bacterial growth during the operation[4]. Several materials have heretofore been used for surgical scrub of hands such as Antibacterial Soaps, Hibitan, Chlorhexidine, Betadine (Povidone Iodine 7.5%)[5].

Among these agents, Betadine scrub has been conventionally and generally used in Iran for years, whereas alcoholic agents with powerful and longtime antiseptic effects that can disinfect hands in a short time (3 minutes) are preferred and used in European countries[6] due to their efficacy and less irritant and allergen effects after longtime use(5,7).

Many studies show alcohol-based agents (ethanol or propanol), compared with other materials, have more persistent and quick antiseptic effects. It means that these agents can remove transient skin bacteria in the shortest time; furthermore, they can control and cease the growth of resident skin bacteria for a long time[8,9].

Although some researchers have indicated the effect of Povidone Iodine 7.5% in reduction of bacteria of hand with more than 3 minutes scrubbing and less than 2 hours permanence, this agent, compared with alcoholic agents, have had less power to control resident skin bacteria[10,11]. The aim of this study is to compare efficacy of Betadine and an alcoholic agent (Decosept) for surgical hand scrub on Bacterial Colony Count (BCC).

Method

This clinical trial was conducted on 20 (13 women and 7 men) healthy human subjects (operating room nurses of Tamin-e-Ejtemaee Hospital in Khorram-Abad in Iran, 2006) who met the necessary inclusin criteria and were aged 21-28 years old. The same group was used in both stages of the study for assimilating of samples and deletion of some effective agent on skin bacterial flora. At the first stage, Betadine (Povidone Iodine 7.5%) and then (1 week later) at the second

stage, Decosept (100g contains: 44.7g Iso-propanol, 21.9g N-propanol, and 0.1g Benzalkoniumchlorid) were used for scrubbing. Cases were initially controlled for the following criteria:

1. They should refrain from having contact with any local antimicrobial-containing material (such as ointment, cream, soap, and shampoo) and using systemic antibiotics for one week before the study and during the study (for protection of bacteria flora).
2. Skin of their hands was intact without any abrasion and fingernails were clipped.
3. Both groups scrubbed for 3 min so nthat fingertips up to wrist was disinfected (without using a brush).
4. The scrub method was performed by routine technique in the Betadine stage and according to special instructions in the Decosept stage.
5. First stage: a culture sample was provided for determination of pre-value after hand washing with 5ml of a non-antimicrobial soap for 1 minute and then toweling dry. Hands were scrubbed for 3 minutes then (for 3 times and every time for 1 min with a 5ml of Betadine), namely after wetting hands; they were disinfected from fingertips up to wrists and then washed and dried with a sterile towel.
6. After one week: all the subjects (20 cases) washed their hands for 1 minute with soap and toweled them again. The culture sample was then provided for determination of pre-value. They rubbed their hands with 10-12ml of Decosept for 3 minutes after that (according to instructions and without washing). The moisture of hands with this agent should have been sustained during the disinfecting by Decosept[3]. Totally of 120 samples (60 samples in each stage) were provided and cultured. The plates were coded after sampling.

Pre-value determination:

In this study, TSB (Tryptic Soy Broth) and TSA (Tryptic Soy Agar) standard cultures of Merk Company were used. Sampling was performed with PrEN12791 standard method in 9cm diameter plates which contained 10ml TSB(5). This sampling method is used in European countries to determine preparation and purity of hands after primary washing(11). In this method, a tenth of the diluted matter from hands was settled in TSB culture and then was distributed (with a sterile spatula) in TSA culture. Period of sampling to culturing onset was performed in less than 30 minutes. The plates were incubated at 36±1oC for 48 hours. The Colony Forming Unit (CFU) was then enumerated in each plate.

Determination of immediate after disinfection criterion (Post-value I):

All the subjects set their fingertips of one hand into TSB culture for 1 min after hand disinfecting by either agent (Betadine or Decosept). Neutralizers (3% Tween 80, 3% Saponin, 1% Histidin, 0.1% Cystein) was added in each plate and then the other hand was put in a sterile glove.

Determination of persistence of antiseptic agent efficacy criterion (Post-value II):

Gloves were removed after 2 hours and fingertip sampling for 1 minute was performed by the previous method (for examination of immediate effect). Diluted matter in TSB was taken from plates and settled and distributed (with sterile spatula) in TSA plates. Then the plates were incubated at 36±1oC for 48 hours outright. The period of sampling and putting them into the incubator was done in less than 30 minutes. The CFU was enumerated in each plate after exiting from the incubator.

The bacterial colony counts were converted to logarithms, and log10 reductions from the baseline were calculated for each period (Pre-value, immediate after disinfection and 2 hours after disinfection criteria).

Statistical analysis was performed by SPSS v.12 software after data adjustment. Demonstration of a normal distribution was obtained by using the one-sample kolmogrov smirnov test. Statistical comparisons between groups were performed by paired t-test.

Results and Discussion

The results of 120 cultured samples in two stages (60 samples in each stage) were provided from 20 nurses from the operating room:

1. There was no statistical difference between both stages in means of colony-forming count after hand-washing with non-antimicrobial soap.
2. The means of colony forming count after hand washing with soap compared with immediate after disinfecting by Betadine showed a prominent statistical difference (P=0.000).
3. The means of reduction of colony forming count for immediately after disinfecting by Betadine compared with 2 hours after showed a prominent statistical difference (P=0.001).
4. There was a statistical difference between means of colony-forming count, after hand washing with soap and immediately after disinfecting by Decosept (P=0.000).
5. The means of increasing of colony-forming counts for immediately after disinfecting by Decosept compared with 2 hours after, showed a statistical difference (P=0.001).
6. The means of reduction of colony forming counts for immediately after disinfecting by Betadine compared with Decosept showed a prominent statistical difference (P=0.011).
7. The means of increasing colony-forming count for 2 hours after disinfecting by Betadine compared with Decosept (for determining of agent persistence) showed a prominent statistical difference (P=0.023). (Table 1)
8. Comparison between antiseptic effect immediatlye and 2 hours after disinfecting showed the increase in colony forming of about 1.7 in Betadine (P=0.001) versus about 1.15 in Decosept (P=0.001) (Table 2).
9. Bacterial colony frequency after hand washing with soap was about 2-14 colonies in each culture (total of 114 and 122 for Betadine and Decosept respectively).
10. Bacterial colony frequency immediately after scrubbing with Betadine was about 1-7 colonies in

each culture (total of 38).

11 Bacterial colony frequency 2 hours after scrubbing with Betadine was about 1-13 colonies in each culture (total of 72).

12 Bacterial colony frequency immediately after scrubbing with Decosept was about 0-2 colonies in each culture (total of 25)

13 Bacterial colony frequency 2 hours after scrubbing with Decosept was about 0-5 colonies in each culture (total of 40). (Figure 1)

Conclusion

Results of this study showed the efficacy of both Betadine (Povidone Iodine 7.5%) and Decosept (contained Propanol) agents on immediate and longtime reduction of skin bacteria, which corresponds, to Kampf and Nishimura research[5,9].

According to the aim of the study, Betadine and Decosept have a prominent difference in immediate reduction of skin bacteria, which was evidenced by colony count in cultured samples of subjects. This result equates with other research, which has shown the efficacy of alcoholic agents over routine agents in reducing colonies of the skin bacteria[10,11].

Whereas cleaning of transient skin bacteria off the hand in the shortest time is very important, and for nosocomial infections control, considering the efficacy and longtime effect of Decosept on reduction of microorganisms with 3 minutes of scrubbing, it is better to replace Betadine with Decosept for hand scrub.

The moisture of hands with alcoholic agents such as Decosept should be sustained during the scrubbing. In this study, 10-12ml of Decosept was sufficient for every scrub. Results of Kampf and Ostermeyer (2004) research showed various volumes of N-propanol 60% and the quantity which kept the moisture of hands have the same effect on reduction of colonies[11].

It is necessary to use a longterm effect agent to keep the antiseptic status of hand in glove for prolonged (more than 1 hour) and major surgery. In this study, there was a prominent difference between means of reduction of colony growth of hand in glove after scrubbing by Decosept compared with Betadine. This difference of persistency of alcoholic agents during the surgery in keeping the antiseptic status of hand skin has been shown in the Bryce study[12].

Therefore, it is recommended that alcoholic agents such as Decosept be used instead of other antiseptic agents as far as possible.

Generally, there was a prominent difference between Betadine comparing with Decosept in reduction of colony count immediately after disinfecting and increasing of colony count 2 hours after it. Therefore, considering health workers' important goal and duty for controlling nosocomial infections, they should be encouraged to use more alcoholic agents (Decosept). It is also necessary to study possible complications in bacterial flora and skin dehydration through the prolonged use of alcoholic agents.

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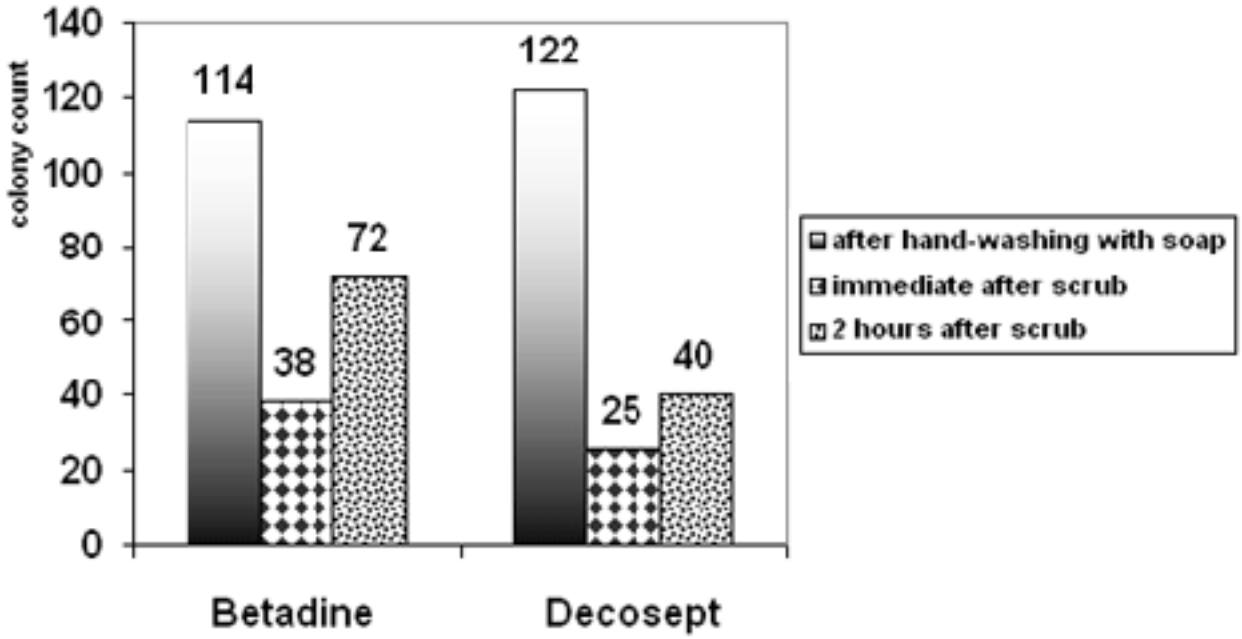
Table 1- Comparison of difference between means of colony count in cultured samples after scrubbing with Betadine and Decosept

Group	Number	Mean±SD*	T	P value
Betadine (immediately)	20	1.90±1.55	2.83	0.011
Decosept (immediately)	20	0.75±0.85		
Betadine (after 2 hours)	20	3.60±2.81	2.48	0.023
Decosept (after 2 hours)	20	1.90±1.29		
* Standard Deviation				

Table 2- Comparison of difference between increase in colony-forming, immediately and 2 hours after scrubbing with Betadine and Decosept

Group	Number	Mean±SD*	T	P value
Betadine (immediately)	20	-1.7±1.88	-4.07	0.001
Betadine (after 2 hours)	20			
Decosept (immediately)	20	-1.15±1.38	-3.70	0.001
Decosept (after 2 hours)	20			
* Standard Deviation				

Figure 1- Comparison between reduction of colony frequency after hand-washing with soap, immediately and 2 hours after scrubbing with Betadine and Decosept.



PREVALENCE OF CONTRACEPTIVE USE IN NAOGAON DISTRICT OF BANGLADESH

ABSTRACT

The aim of this study is to assess the knowledge and use of contraception of ever-married women of a district of Bangladesh, namely Naogaon. The study uses data collected from some specific rural and urban areas of Naogaon district, Bangladesh.

The information was collected from 800 ever-married women by interview method. Bivariate analysis and logistic regression analysis were adopted in the course of data the analysis revealed that although the knowledge of contraceptive use has been conveyed to the majority of couples in Bangladesh, the current use rate of contraception is high enough (above ninety percent) and most of them are currently using modern methods. The most prevalent method of contraception was the pill.

The level of current contraceptive use is higher in urban areas than in rural areas, however, this gap is very narrow. Logistic analysis shows that, education of both respondent and husband, visit of family planning workers, place of residence, desire for additional children, talking to husband about family planning and number of living children have a net significant effect on the current use of contraception.

Key words: Betadine, Decosept, Surgical Scrub, Bacterial Colony Count; Efficacy of Betadine and Decosept for surgical hand scrub on Bacterial Colony Count (BCC).

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Introduction

Nowadays population is one of the burning questions in Bangladesh. Bangladesh strives hard to solve ubiquitous problems related to some population issues such as: fertility reduction to achieve the replacement level, reproductive health and reproductive rights of women in terms of family planning etc. In this case, the family planning program has been considered as one of the successful programs in a setting without much socio-economic development that is considered as a prerequisite for fertility decline in the broader sense and ensures the reproductive rights and health of a woman in the individual sense. Use of contraception is generally the main determinant deriving reduction in fertility in developing countries (Mitra et al; 1993).

Any deliberate practice to avoid conception and to keep the family size small is the main motive of contraception. Although contraceptive prevalence among ever-married women of reproductive age is increasing rapidly, in many developing countries, the rate has not yet reached that of developed countries.

Therefore, it is important to understand the levels and determinants of contraceptive use in order to formulate policies supporting proper strategies for raising contraceptive prevalence. Such considerations as, desired family size and child- spacing influence contraceptive prevalence among married women at the individual level, while at the macro level, the laws and regulations and cultural norms are important factors that determine access to contraception.

However, unwanted pregnancies resulting from lack of contraceptive use have led to an increasing number of abortions among women. Though the accepted contraceptive use rate has its momentum, still there might exist difference in the use rate by rural-urban residence as well as regional difference. The present study is an attempt to assess the use of contraception of ever married women of Naogaon district, Bangladesh.

Data and Methodology

In this study, the ever married women of reproductive age in Naogaon district are the study population. The data was collected on fertility performance along with various socio-economic characteristics of the respondents from both urban and rural areas in Naogaon district. Number of respondents has been 400 from rural and 400 from urban areas.

To determine the contraceptive behavior of ever-married women of the study population, the percentage of married women has been analyzed by categories of several independent variables. The Logistic Regression Model is used for identifying the risk factors and for predicting the probability of success.

The general logistic model expresses a qualitative dependent variable as a function of several independent variables, both qualitative and

quantitative (Cox, 1984).

If P is the probability of use of contraception, then

$$P=\frac{1}{1+e^{-(\beta_0+\beta_1 x)}}$$

where β_0 and β_1 are the regression coefficients and X is a vector of covariates that affect the use of contraception. The general logistic regression model can thus be

$$\text{Logit}\,(p_i)=\log_e\frac{p_i}{1-p_i}=\sum_{j=0}^{k}\beta_j x_{ij}$$

which express the log odds of current users as a linear function of the independent variables.

In this analysis, the input data were matrices tabulating the current use status of contraception by independent variables. The logistic model is fitted by considering current use of contraception as the dependent variable, which have dichotomized by assigning 1 if respondents were using any method of contraception at the time of the survey and 0 for not using any method.

In performing stepwise regression analysis for the determination of significant variables, 10 variables were initially selected for logistic regression analysis. If the odds ratio is greater than unity, the probability of being a current user is higher than that of being a non-user. The P value is used to identify the significant effects to assess the relative importance of the selected variables in the logistic regression model.

Results and Discussion

Knowledge of Contraception

In the 2004 BDHS survey, knowledge of contraceptive methods was assessed through a series of questions combining spontaneous recall and prompting procedures, as in the earlier BDHS survey. Information about knowledge was sought for six modern methods: the pill, IUD, injection, condom, female sterilization and male sterilization as well as two traditional methods: periodic abstinence (safe period or rhythm method) and withdrawal. Today a desire for family limitation is noticeable everywhere. A relatively wide range of contraceptive choices is available to women ranging from short acting to medium term, long action and permanent methods. These methods are available through Government, Non-Government Organization (NGO) and private sector network.

Current Use of Contraception

The term "current use" refers to the method that was being used by an individual client at the time of the survey. According to the BDHS-2004 report current use of contraception is defined as the proportion of women and men who reported that they are using a family planning method at the time of interview. Table 1 shows the percentage distribution of ever-married women by current contraceptive use status. The Table show that about 93.9 percent women of the study area are currently using contraceptive methods. This current contraceptive use rate is higher in urban areas than in rural areas (about 96.5 percent vs. 91.2 percent) giving rise to an almost 5% urban rural gap in contraceptive use. Among all methods, the pill accounted for the highest use (near to 51.0 percent). There has been a wide difference in the use of pill by rural-urban residence: use rate of pill in urban area is 56% and in rural area is 46.3%, a gap of nearly 10%. The use rate of condom is higher in urban area but the use rate of injection and male and female sterilization are higher in rural areas. Traditional methods are less widely used than modern methods.

Differentials in Current Use of Contraception

Although the current contraceptive use rate is still high (93.9 percent) among the women of the study area, there are positive variations in use among women with different socio-economic and demographic characteristics. The level of current contraceptive use is higher in urban areas than in rural areas. Contraceptive use is also higher among women aged 20-34 years than among women either younger or older. The level of education of both respondent and their husband seems to have a positive effect on the current use of contraception. The current use rate is found to be directly associated with number of living children and age at first marriage. The women who have no children are less likely to use contraception. The current use rate is much higher among the non-Muslim women than Muslim women in the study area. Women who have talked to their husband about family planning are more likely to use contraception than women who have never talked to their husband, which indicates that the discussion with the husband is needed for applying any decision of contraception. Those who do not desire more children are more likely to be current users than those who desire more children. Occupation of husband also has a strong effect on the use of contraception. Visits of family planning workers also have a positive impact on contraceptive use rate.

Multivariate Logistic Model for current use of contraception

The logistic model is fitted by considering current use rate of contraception as the dependent variable. The independent variables are considered as place of residence, religion of respondent, education of both respondent and husband, occupation of husband, age at first marriage, desire for more children, number of living children, talked to husband about family planning and visit of FP workers.

Place of residence and religion of respondent has a significant and positive influence on the current use of contraception. In Table 3, the odds ratio for place of residence shows that the women of urban areas are 2.3 times more likely to use contraception than women in rural areas. Non-Muslim women are 2.044 times more likely to use contraception than their Muslim counterparts. The effect of the respondent's education on current contraceptive use is found to be the most important one. Women with secondary or higher education are found to be 79.7 percent more likely to use contraception than those who are illiterate (Table 3). This indicates that women's education is the most

important factor. It is followed in importance by women's participation in family planning decision-making. Both influence the current use rate of contraception positively.

Education of husbands also gives the significant and positive effect on current use of contraception. Occupation of husbands shows insignificant and negative results except the service category by use of contraception.

The women whose husbands work in service are 1.356 times more likely to use contraception than the wives whose husbands work in the agricultural group (Table 3). Age at first marriage does not very much influence current use of contraception. Desire for additional children is highly significant and a positive influence on current use of contraception. Table 3 shows that the group of women who want no more children is 2.261 times more likely to use contraception than the women who want more children. Number of living children has a significant relationship with current use of contraception.

The women who have 1-2 children are 2.221 times more likely to use contraception than those who have no children. With an increment in the number of children the likelihood of using contraception also increases.

The women who talked to their husband about family planning are 3.05 times more likely to use contraception than those who never talked to their husband. This indicates that a husband's opinion has a great influence on use of family planning methods. Visit of family planning worker is highly significant and appeared as the most important factor influencing the current use of contraceptive methods. In view of the likelihood that the visit of a family planning worker can motivate the women by counseling on family planning methods. Thus efforts of the family planning worker can increase the contraceptive rate.

Conclusion

The study reveals that nearly all women of the study area are aware of at least one contraception method. The current rate of contraceptive use in Bangladesh is still high (93.9 percent) and it has an increasing tendency day-by-day. This study found a persistent, strong relationship between women's education and contraceptive use, but education makes less difference to contraceptive use where family planning programs are strong.

Although female education should be encouraged particularly in the rural areas, the husband-wife discussion about family planning and a more equal status of women in family in terms of decision making about family planning are important for increasing the contraception use rate and also the husbands consent is required before his wife can accept a contraceptive method. Efforts should be made to encourage greater participation of women in all family decisions.

The current use of contraception is more in urban areas. It is also being increased in rural areas to control the growth rate of Bangladesh. Improvement of the status of women in the family and society in general, and enhancement of contraceptive supply through visits by field workers to the individual level in particular, would make the family planning program more effective and successful in Bangladesh.

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Table 1: Distribution of Ever Married Women by Current Use of Contraception

Contraceptive method	Urban	Rural	All
No method	3.5 (14)	8.8 (35)	6.1 (49)
Any modern method	94.6 (378)	90.9 (363)	92.6 (741)
Pill	56.0 (224)	46.3 (185)	51.0 (408)
IUD	1.5 (6)	1.5 (6)	1.9 (14)
Injection	4.8 (19)	17.8 (71)	11.3 (90)
Condom	27.3 (109)	10.0 (40)	18.3 (146)
Female sterilization	5.0 (20)	14.8 (59)	10.0 (80)
Male sterilization	-	0.5 (2)	0.3 (2)
Any traditional method	2.0 (8)	0.5 (2)	1.3 (10)
Periodic abstinence	1.5 (6)	0.3 (1)	0.9 (7)
Withdrawal	-	0.3 (1)	0.1 (1)
Other method	0.5 (2)	-	0.3 (2)
Total number	100 (400)	100 (400)	100 (800)

Table 2: Current use of Contraceptives of the Study Population

Characteristics of the Study Population	No. of Respondent	Currently using Contraception (%)
All (15-49)	800	93.9
Place of residence		
Urban	400	82.0
Rural	400	68.0
Age of respondent		
Less than 20	54	70.4
20-34	526	75.9
35 and over	220	75.5
Education of respondent		
No education	120	72.5
Primary	140	75.4
Secondary and higher	540	77.9
Education of husband		
No education	109	72.5
Primary	131	74.0
Secondary and higher	560	76.3
No. of living children		
No children	82	41.5
1-2	404	76.2
3 or more	165	87.8
Age at first marriage		
Less than 20	440	78.5
20 or more	360	64.4
Religion		
Muslim	750	58.0
Non-Muslim	50	76.5
Talked to husband about FP	247	41.8
Never	553	69.2
Once or more		
Desire for more children	303	61.4
Want more	497	83.9
Want no more		
Occupation of husband	210	76.2
Agriculture	265	78.5
Service	220	70.5
Business	72	70.8
Labor	33	67.9
Others		
Visit of FP workers	149	64.5
No	651	85.6
Yes		

Table 3: Logistic Regression of Current Use of Contraception among Ever-Married Women

Characteristics	Beta Coefficient (β)	S.E.	Significant probability (p)	Odds ratio
Place of residence				
Rural (r)	-	-	-	1.000
Urban	0.862	0.237	0.000	2.368
Religion of respondent				
Muslim (r)	-	-	-	1.000
Non-Muslim	0.715	0.340	0.035	2.044
Education of respondent				
No education (r)	-	-	-	1.000
Primary	0.309	0.296	0.096	1.734
Secondary and higher	0.227	0.273	0.005	1.797
Education of husband				
No education (r)	-	-	-	1.000
Primary	0.466	0.318	0.043	1.623
Secondary and higher	0.339	0.279	0.025	1.712
Occupation of husband				
Agriculture (r)	-	-	-	1.000
Service	1.032	0.602	0.086	1.356
Business	-0.440	0.603	0.465	0.644
Non-agriculture labor	-0.835	0.603	0.166	0.434
Others	-0.761	0.644	0.238	0.467
Age at first marriage				
Less than 20 (r)	-	-	-	1.000
20 or more	0.116	0.235	0.021	1.123
Desire for more children				
Want more (r)	-	-	-	1.000
Want no more	0.816	0.212	0.010	2.261
No. of living children				
No children (r)	-	-	-	1.000
1-2	1.511	0.390	0.000	2.221
3 or more	0.500	0.270	0.064	2.806
Talked to husband about FP				
Never (r)	-	-	-	1.000
Once or more	1.145	0.048	0.000	3.050
Visit of FP workers				
No (r)	-	-	-	1.000
Yes	0.008	0.230	0.074	1.608
Constant	0.992	0.775	0.201	2.697

Note: (r) represent reference category

LITERACY AMONG THE FEMALE WORKERS IN INDUSTRIES OF RAJSHAHI IN BANGLADESH

ABSTRACT

One of the important aspects of human development is education both at the individual and the collective levels. Higher level of education means higher jobs implying higher standard of living. In this paper attempts are made to analyze the educational characteristics of the female workers who work in different types of industries at and around Rajshahi city corporation area in Bangladesh. In all 891 workers are interviewed and the majority of them (20.20%) are found to work in sericulture industries followed by cottage industries (18.2%). Of the 891 women 52.1% are literate. Of the literate females 51.5% have primary level of education 42.7% secondary level and only 5.8% above secondary level. Maximum numbers of literate females are found to work in sericulture industries (32.3%) followed by textile industries (19.6%). We find strong external effects of education on individual earnings.

Key Words: Human Development, Female workers, Industry, Level of Education, High Job.

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Introduction

Life of women in Bangladesh is plagued with poverty, illiteracy, malnutrition and socio-economic backwardness. In addition to these, the prevailing traditions and cultural taboos greatly restrict a woman's activities in society. Being connected with other parts of the world through the movement of capital, goods and people is nothing new for Bangladesh. In the pre-colonial period, Bengal, the eastern half of which constitutes the present Bangladesh, was once a centre of cotton textile and silk manufacturing (Gardner 1995). And women were by no means excluded from the influence of the globalisation of that period. While women's labour, in high demand for production of home spun yarn during the eighteenth century, lost its value when textiles made in British factories began to flood the Bangladeshi market, the rise of the export-oriented readymade garment industry has given Bangladesh women a predominant position in the economic and social space opened up by globalization (Hossain, Jahan and Sobhan 1990).

Bangladesh is one of the developing countries of the world. After 36 years of our country's independence we are still poor and underdeveloped due to the major causes of low literacy rate and less industrialization. Gender disparity is a reflection of complex social, cultural, and economic issues. While some improvement in gender equality has been achieved in sectors such as education, health and family welfare, labour and employment, and democratic participation, in Bangladesh true empowerment is still a distant goal. Women can do a miracle for themselves and the country if they get opportunities to live according to their own choice. There was a time not far back when a woman's life in our country was peaceful and she used to be treated as an asset in her husband's household. Besides her reproductive role, she used to put in a lot of domestic and agricultural labour for the family in the whole course of her life.

The female population is about half of our total population, but women's activities are very low, tin the effort to build up our nation and financial prosperity. Imam (1989) said that no development efforts could be successful without the participation of fifty percent of the labour force of a particular country. According to Buvinic (1993), poverty oriented research utilizes certain techniques to avoid the tendency to undervalue women's work. There are few industries in our country in which a number of females work, except garment sectors. The past two decades have witnessed a rapid growth of the female labour force in Bangladesh. Women's participation in certain types of non-traditional jobs has increased significantly in the recent past. A growing number of females are now joining the labour force in both agriculture and non agriculture activities such as earth cutting, brick breaking, road maintenance and

other construction works as well as in sewing, embroidery, basket making and other handicraft. Frepd (1986) found the employment rate of women in the NGO's to be 48% in 1986, but it is still so small in comparison to the population or to the male workers. FAO (1974) found in Asia 40 percent of the agriculture labour force is female who do much of the work involved in producing and processing rice. But such figures are now so small in the industries sector. Several lots of research have been done (Ahasan et al., 2002a, 2002b; Behrens and Brackhil, 1993; Bangladesh Bank, 1998; Irene Tinker, 1992; Abdullah, 1998; Basu et al., 2001; Kabir, 1993; Mannan, 1989; Islam, 1989; UNDP, 1994; Banu, 1988; World Bank, 1990, 1996; BGMEA, 2001; BSCIC, 1998; ADB, 2001; Brayfied and Rothe, 1951; and FAO, 1974) on female workers, their life and education levels as a whole, in Bangladesh.

Unfortunately there is no nationwide data on literacy level and socio-economic status of the female workers who work in different types of industries of Bangladesh. There are a few industries in Rajshahi, a relatively less developed area in respect of industry, and a very few number of women work in these industries. Wazifa (1989) has done some works on silk as an industry which has had a tremendous effect on the economy of the district. In this paper we have tried to highlight their educational level related to their age, the type of appointment and type of industries and residence.

The main objectives of the study are:

- To look at the relationship between level of education and female's age
- To examine the association between the type of appointment and level of education
- And to test the independence of level of education and type of industries.

Data and Methodology

IThe present study has utilized the data collected in a survey of a few industries in and around Rajshahi city area of Bangladesh. In the study by female workers we mean those women who have been working in different types of industries in the study area.

We have found 34 industries categories such as: jute mill (1), sugar mills (1), sericulture (all types) (8), textile mills (3), rice mills (7), biscuits factory (2), press (1), printing (2), all types of cottage industries (4), weaving (1), fabrics (4) etc . In all 891 female workers were interviewed from their respective industries. For the sake of our study all of the 34 industries are categorized as follows:

(i) Sericulture : Rajshahi Sericulture factory.

(ii) Textile mill: Rajshahi Textile Mill limited.

(iii) Jute mill : Rajshahi Jute Mill.

(iv) Sugar mill: Rajshahi Sugar Mill.

(v) Rice mill: Sahi Rice mill, Noor Habib Rice mill, Goribeneouz Rice mill, Haque Rice mill, Serajul Rice mill, Sekandar Rice mill, and Keramat Rice mill.

(vi) Small and Cottage industries : Sopura silk mills limited , Alamgir fabrics, North Bengal silk printings factory, Mahila shilpa sangstha, Surovi textile, S.M silk industry limited, Munnu weaving factory, Silko textile , Mahila shilpa pratisthan, Suman fabrics, Uttara silk printings factory, padma silk factory, Meraj Fabrics etc.

(vii) Miscellaneous: Palash metal industries limited, Rijent Aluminium factory, Sonali printings, Grenary bekar, Sumi Homio Hall, Natural Drugs, Bismillah Printings factory, Amzad Jarda factory, Aroma Foods etc.

For our purpose we have considered the female workers as regular and irregular workers. Regular means the females have a permanent job and irregular means a temporary job (e.g. daily workers, contract workers, part time workers or seasonal workers etc.).

Some of the female workers are literate and some are illiterate. Literate female workers are classified on the basis of their educational level as follows:

(i) Primary level of education

(ii) Secondary level of education

(iii) Higher Secondary level and

(iv) Graduate and above.

On the basis of the above mentioned classifications some cross tables are constructed to obtain the percent distribution and relationship between these classifications.

Results and Discussions

The percent distribution of the female workers is presented in Table 1. It has been found from this Table that 20.2% of the total female workers are working in sericulture factories and about 16% in textile mills. Only 2.25% and 3.59% are working in jute and sugar mills respectively, whereas about 17% are working in rice mills and 18.2% are in cottage industries. We have the same trend of female workers from Figure 1. Thus we have seen that considerable numbers of female workers are working in sericulture factories and textile mills, both these industries are relatively big ones.

Table 2 presents the distribution of the female workers by age and type of industries. From this table we have found that 20.7% of the total female workers, which is the highest, belong to the age group 25-29 followed by 19.1% in 30-34 and 15.8% in 20-24 .But in the sericulture factory 30.6% are in the highest age group 35-39 followed by 25.5% in 30-34 and 17.2% in the age group 40-44 respectively.

In textile industries, we have found the same results as sericulture industries as well as jute and sugar industries .But in the rice mill and small andd cottage industries we have found different results from the previous ones. Among these type (Rice mill and cottage industries) of industries the highest female workers are found in the age group 25-29.

From Table 3 the highest percentage (24.4%)of the illiterate female workers are found in the age group 25-29, followed by workers in the age groups 20-24 and 30-34 respectively.

We have also found from Table 3 that the literate female workers who are educated to primary level the highest percentage (24.7%) are in the age group 35-39, secondary level the highest percentage (29.3%) being in the age group 30-34 followed by

19.7% in 35-39. We observed from this Table that the female workers of the middle age groups have possessed relatively higher education than the other workers.

Distribution of the female workers by the type of appointment and level of education are presented in Table 4.1 and 4.2. It has been found from Table 4.1 that just half of the total female workers are permanent (50.7%) and another half are temporary (49.3%). We have also found that 52.1% are literate and 47.9% are illiterate.

It has been found from this Table that out of the permanent female workers 67.5% are illiterate and 32.5% are illiterate and out of the temporary workers 36.2% are literate, which is a smaller group than illiterate workers (63.8%).There is clear evidence that the type of appointment is highly associated with the literacy of female workers and such a relationship is statistically significant.

From Table 4.2 we have found that out of the permanent literate female worker 46.2% are of primary level, which is the highest, followed by 45.6% of secondary level, 5.6% of higher level and only 2.6% are graduate and above. Out of literate temporary female workers, 61.1% are of primary level which is the highest, 37.1% are of the secondary level, only 1.3% higher secondary level and none is of graduate level or above. However the type of appointment and the level of education of the workers appear to be statistically significant.

From Table 5.1 and 5.2 we have found that the distribution of the female workers by type of industry and level of education. Out of the literate female workers 32.3% are found in sericulture factories followed by textile mills 19.6%, small and cottage industries 23.0% and textile industries 11.7%. Our statistical evidence is that literacy of female workers is highly influenced for getting jobs in various types of industries.

From Table 5.2 we found that among the literate females 51.5% are of primary level, 42.7% secondary level, 4.1% are of higher secondary and only 1.7% is of graduate levels. Again from these tables literate female workers who work in textile mills, 53.8% are of primary level, 38.5% are secondary level and only 5.5% have higher secondary level. From this table we also found that the literate female workers who were engaged in the jute mill 27.3% are of primary level, 9.1% are of secondary level and 45.5% are of higher secondary level.

Number of employees in different manufacturing industries are presented in Table 6.1 for the year 1990-91 and 1995-96. I found from this table that number of employees increased from 1990-91 to 1995-96 but the number of female workers are still much lower than male workers.

We have also found the literacy situation (Table 6.2 and Figure 2) of Bangladesh that the female literacy is far behind the male both in rural and urban areas. Some nationwide demographic and educational characteristics are presented in Table 6.3. From this table we have found that expectation of life at birth for both male and females are not remarkably different. Even the infant mortality rate per thousand for female infants (90) is a little higher than the male infant (86) but the adult literacy rate for females is significantly lower than that of male literacy rate. We have also found discrepancy of school enrolment between male and females in all the level of educations. It means that education level of Bangladeshi females is comparatively lower than male which reflects the literacy situation of female workers in industries.

Conclusion

In Bangladesh, Rajshahi is one of the under-developed and less industrialized areas of the country. There are a limited number of industries in and around Rajshahi city. The female workers who work in industries of Rajshahi are mostly less educated. Only 3.03% of female workers are above higher secondary level. Most of the literate female workers have a permanent job in their industries and their livelihood is perhaps better than the others. The study bears out the evidence of universal phenomenon that better education means better jobs which means better standards of living. The females who work in various industries of Rajshahi and among those, they who are better educated are engaged in some big industries like Silk and Jute industries where the jobs are more or less secured.

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Table 1. Percent distribution of the female workers by type of industries

Industries	Percentage of female workers
Sericulture	20.20% (180)
Textile	15.82% (141)
Jute	2.25% (20)
Sugar	3.59% (32)
Rice mill	16.50% (147)
Small & Cottage industries	18.20% (163)
Miscellaneous	23.34% (208)
Total(N)	100% (891)

Table 2: Distribution of female workers by age and type of industries

Age	Sericulture	Textile	Jute mill	Sugar mill	Rice mill	Small & Cottage industries	Miscella-neous	Total
<15					3.4%(5)		2.4%(10)	1.1%(10)
15-19					8.7%(13)	11.7%(19)	14.4%(62)	7.0%(62)
20-24	1.7%(3)	1.4%(2)	5%(1)		22.5%(33)	24.5%(40)	29.8%(141)	15.8%(141)
25-29	9.4%(17)	13.9%(19)	5%(1)	18.8%(6)	34.0%(50)	29.5%(48)	20.7%(184)	20.7%(184)
30-34	25.6%(46)	25.5%(36)	15%(3)	25%(8)	13.6%(20)	20.3%(33)	11.5%(170)	19.1%(170)
35-39	30.6%(55)	30.5%(43)	45%(9)	18.8%(6)	10.9%(16)	8.6%(14)	11.5%(167)	18.7%(167)
40-44	17.2%(31)	21.3%(30)	15%(3)	12.5%(4)	4.1%(2)	3.7%(6)	3.4%(87)	9.8%(87)
45-49	8.3%(15)	6.4%(9)	5%(1)	3.1%(1)	1.4%(2)	0.6%(1)	2.4%(34)	3.8%(34)
50-54	5.6%(10)	0.7%(1)	10%(2)	9.7%(3)	0.7%(1)	1.2%(2)	3.4%(26)	2.9%(26)
55-59	1.1%(2)	0.7%(1)		12.5%(4)			0.5%(8)	0.9%(8)
60+	1.6%(1)				0.7%(1)		.2%(2)	0.2%(2)
Total	100%(180)	100%(141)	100%(20)	100%(32)	100%(147)	100%(163)	100%(891)	100%(891)

Table 3. Distribution of the female workers by age and level of education

Age	Literate				Illiterate	Total
	Primary	Secondary	Higher Sec-ondary	Graduate		
<15	1.3% (3)				(1.7% (7)	1.1% (10)
15-19	5.0% (12)	7.6% (15)	10.5% (2)		7.7% (33)	7.0% (62)
20-24	19.7 (47)	9.6% (19)	10.5% (2)		17.1% (73)	15.8% (141)
25-29	17.6 (42)	16.7% (33)	21.0% (4)	12.5% (1)	24.4% (104)	20.7% (184)
30-34	15.1% (36)	29.3% (58)	21.0% (4)	25% (2)	16.4% (70)	19.1% (170)
35-39	24.7% (59)	19.7% (39)	21.0% (4)	50% (4)	14.3% (61)	18.7% (167)
40-44	11.7% (28)	10.6% (21)	15.8% (3)	12.5% (1)	8.0% (34)	9.8% (87)
45-49	2.5% (6)	4.0% (8)			4.7% (20)	3.8% (34)
50-54	1.7% (4)	2.0% (4)			4.2% (18)	2.9% (26)
55-59	0.8% (2)	0.5% (1)			1.2% (5)	0.9% (8)
60+					0.5% (2)	0.2% (2)
Total	100% (239)	100% (198)	100% (19)	100% (8)	100% (427)	100% (891)

Note: (r) represent reference category;

*: *** for P<0.01, ** for P<0.05, and * for P<0.1*

Table 4.1 Distribution of the female workers by the type of appointment and level of Literacy

Literacy	Permanent	Temporary	Total
Literate	67.5% (305)	36.2% (159)	52.1% (464)
Illiterate	32.5% (147)	63.8% (280)	47.9% (427)
Total	100% (452)	100% (439)	100% (891)

=87.2 and (1,.05) =3.84

Table 4.2 Distribution of the female workers by the type of appointment and level of education
Type of appointment

Level of education	Permanent	Temporary	Total
Primary	46.2% (141)	61.1% (98)	51.5% (239)
Secondary	45.6% (139)	37.1% (39)	42.7% (198)
Higher Secondary	5.6% (17)	1.3% (2)	4.1% (19)
Graduate and above	2.6% (8)		1.7% (8)
Total	100% (305)	100% (159)	100% (464)

=15.49 and (2,.05)=5.99

Table 5.1 Distribution of the female workers by type of industries and literacy

Type of industries	Literate	Illiterate	Total
Sericulture	32.3% (150)	7.0% (30)	100% (180)
Textile	19.6% (91)	11.7% (50)	100% (141)
Jute mill	2.4% (11)	2.1% (9)	100 (20)
Sugar mill	3.9% (18)	4.7% (98)	100% (32)
Rice mill	1.3% (6)	33.0% (141)	100% (147)
Small & Cottage industries	14.0% (65)	23.0% (98)	100% (163)
Miscellaneous	26.5% (123)	19.9% (85)	100% (208)
Total	100% (464)	100% (427)	100% (891)

=241.91 and (6,.05)
=12.56

Table 5.2 Distribution of the female workers by type of industries and level of education

Types of industries	Literate				Total
	Primary	Secondary	H. Sec-ondary	Graduate & above	
Sericulture	44.67% (67)	54.0% (81)	.67% (1)	.67% (1)	100% (150)
Textile	53.8% (49)	38.5% (35)	5.5% (5)	2.2% (2)	100% (91)
Jute mill	27.3% (3)	9.1% (1)	45.5% (5)	18.2% (2)	100% (11)
Sugar mill	5.6% (1)	44.4% (8)	33.3% (6)	16.7% (3)	100% (18)
Rice mill	4.1% (6)				100% (6)
Small & Cottage industries	61.5% (40)	35.5% (25)			100% (65)
Miscellaneous	59.3% (73)	39.1% (48)	1.6% (2)		100% (123)
Total	51.5% (239)	42.7% (198)	4.1% (41)	1.7% (8)	100% (464)

=164.63 and (16,.05)=26.30

Table 6.1: Number of Employees in Manufacturing Industry

Sex	1990-91	1995-1996
Both Sex	1,156,204	1,631,993
Male	979,328	1,154,062
Female	176,876	477,931
Total	2,312,408	3,263,986

Source: Bangladesh Data Sheet 1999

Table 6.2 Nationwide Adult Literacy Rate (Age 15+) in 1998

Sex	National	Rural	Urban
Both Sex	51.3	46.4	64.1
Male	59.4	57.3	77.1
Female	42.5	37.8	59.7

Source: Bangladesh Data Sheet 1999

Table 6.3 Nationwide Adult Literacy Rate (Age 15+) in 1998

	Female	Male
Expectation of Life at Birth (1992)	55.9	56.8
Infant Mortality Rate (1992)	86.0	90.0
Adult Literacy Rate (%1991)	18.6	44.3
Enrolment Ratio (% 1991)	**Female**	**Male**
Primary	61.4	77.7
Secondary	15.0	32.0
Post Secondary	12.2	22.3

Source: Bangladesh Data Sheet 1999

Figure 1. Bar Diagram of Female Workers Working in Different Industries

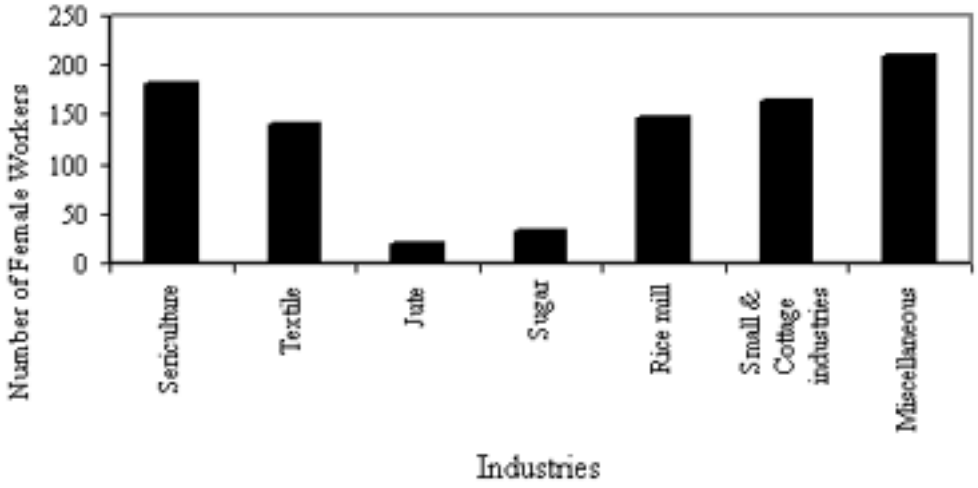
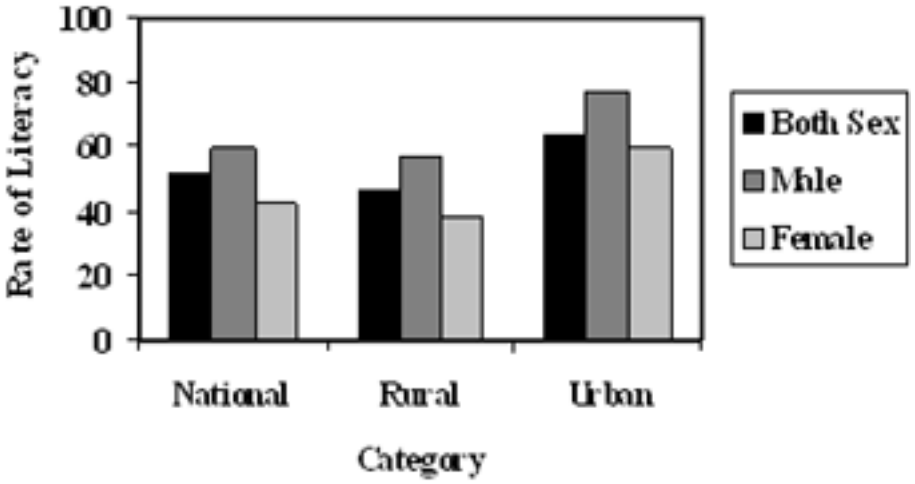


Figure 2: Male-female literacy rate over age 15 in 1998



Source: Bangladesh Data Sheet 1999

THE KNOWLEDGE OF NON - PILGRIMAGE PASSENGERS WHO ARE ON THE POINT OF LEAVING FOR ABROAD, ABOUT THE WAYS OF AIDS TRANSMISSION AND PREVENTION OF IT

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ABSTRACT

Introduction: International passengers are one of the most high risk groups to be exposed to AIDS, and should be aware of the dangers of this disease. The destination is not important but the passengers' knowledge is very important.

Objectives: To determine the knowledge of Non-Pilgrimage, passengers, who are on the point of leaving abroad, about the ways of AIDS transmission and its prevention, conducted in Tehran's International airport.

Materials and Methods: This is a cross-sectional study which determines the participants' knowledge about ways of AIDS transmission and its prevention and then the relationship between these and demographic characteristics have been measured.

Samples: 200 of non-pilgrimage travelers who were going abroad have been selected via random selection in Tehran's airport.

Results: Mean value (13.1) and standard deviation (4.32) showed that the knowledge of passengers was in the average level. X showed the positive relationships between knowledge and some variables like educational level, purpose of trip, continent of destination and the person's job ($P < 0.05$). Z statistical test and Pearson's correlation coefficient showed that there is a positive relationship between passengers' knowledge and their age ($P < 0.05$),($r = .14$) and between passengers' knowledge and their informational sources.($P< 0.05$), ($r = 0.51$)

Conclusion: Findings showed that passengers did not have sufficient knowledge about AIDs (transmission and prevention of AIDS). So, their health knowledge must have been increased for health protection. Therefore training is one of the ways which can be used to increase passengers' knowledge.

Key Words: The ways of AIDS transmission, the ways of AIDS prevention, non-pilgrimage passengers.

Introduction

The HIV virus has been spread throughout the world. In fact AIDS was diagnosed in 1981 when it became epidemic. It is one of the most dreadful infectious diseases in the 21st century. It decreases the human body's immune system and the infected patients don't have any resistance against different diseases and rare cancer[1]. The first recorded case of AIDS appeared among homosexuals and injection drug abusers in western countries. The appearance of a totally different pattern of AIDS in Africa, the most deprived and poorest continent in the world[2], have propounded the new epidemiologic dimensions of this mysterious disease. So, this problem has been considered in three different epidemiological dimensions with their relationships:

1. The virus suffering epidemic
2. The AIDS disease
3. The social, cultural, economical and political reactions epidemic[3].

About the first epidemic, HIV suffering persons were 12 million in 1993 and W.H.O has predicted that they will become 40 million in 2000(4).

The second epidemic is AIDS that has increased in the world rapidly. The number of patients' were70,000 between the years 1981 - 1985 and unfortunately it became more than 1 million persons in the year 1999 with 45% of them from Africa[5].

About the third epidemic, Shahnazarian, the quotation of Phibs, said: one of the main problems is the effect of AIDS on youth because the rate of 20-40 years olds acquitting AIDS is higher than the other age groups[4].

Therefore AIDs has been propounded as an economical, social, political and cultural disease[6].

W.H.O stated that there isn't anything more unexpected and complicated than AIDS in the last decades. It is also stated that 5 million new cases had been diagnosed in 1999 of which 2.1 million affected patients had died in the same year and 2 million cases are added to this number every year. It means that every second one person becomes affected with the HIV virus. It is also stated that there are 12 - 13 affected African women versus 10 men and the others are scattered in all over the world[7].

According to the AIDS section of the United Nations organization, about 35.7 million persons at adult age and 2.1 million children at the end of 2003 are infected with HIV, and by 2004; nearly 4.8 million people had HIV infection.

The last report of the United Nation organization programs in November 2007; states there were 2,200,000 persons that had HIV infection and AIDS.

50% of these are under 25 years and will be dead before 35 years old, and the morbidity rate of HIV infection is increasing in the Middle East[8].

In Iran at the end of autumn 2007, the management diseases center published that 16,090 person's have been recognised with HIV/AIDS. 16,682 of them havw HIV infection (15,686 men and 993 female) while 2,382 of them had AIDS (2,291 men and 91 women). Also at the end of summer 2007; 2,121 persons who had AIDS, died[9].

It is reported that the transmission pattern of AIDs in the north of Iran is vua blood and blood products and

in the south, it is via sexual contact with one of its factors the journey of southern persons to Arabic countries.

Jana tan stated that international passengers are one of the high risk groups who should be aware of the dangers of AIDS. Malek Afzaly stated that millions of Iranians travel abroad every year and at this time 60% of affected persons are those who were living abroad for some time. AIDS is one of the most important health problems all over the world which can affect international passengers, because suffering from this disease is dependent on people's behaviors[11].

The passenger's destination is not important but the passengers' knowledge about AIDS and its ways of transmission and prevention, is very important So, the researcher has tried to do this study with 3 objectives:

1. To determine the non-pilgrimage passengers' demographic characteristics
2. To determine the knowledge of non-pilgrimage passengers who are on the point of leaving abroad, about the ways of AIDS transmission and its relationship with demographic characteristics.
3. To determine the knowledge of non-pilgrimage passengers who are on the point of leaving abroad, about AIDS prevention and its relationship with demographic characteristics.

It is hoped that the findings could help in providing good and suitable educational programs.

Method

A descriptive design with purposive saThis is a cross-sectional study. In this research, first of all, demographic characteristics have been shown and then the knowledge of participants about the ways of AIDS transmission and its prevention have been shown and then their relationships have been measured. Data has been collected once and in one stage. The instrument of this study was a questionnaire which had two parts with 30 questions. In the first part, the questionnaire had 9 questions about participants' demographic characteristics related to the first objective. In the second part, there were 12 questions about the ways of AIDS transmission related to the second objective and 9 questions about the ways of AIDS prevention related to the third objective. In this research, for validity, with due regard to the objectvess, Content Validity has been used.

Samples of this study were 200 of non-pilgrimage passengers who wanted to travel abroad in Mehr Abad International airport of Tehran.

Sampling has been done in 2 stages. First of all, the lists of foreign passengers' flight have been prepared and then 4 days of the week have been chosen by chance and because the foreign flights were from 10 P.M until 8 A.M, after coordination with related official units, the questionnaires have been distributed among passengers who participated optionally. Admissive criterions of samples were:

1. Participants should be 20-60 years old
2. They should be inclined to participation and should be able to answer the questions.

Collected data has been analyzed with SPSS. Descriptive statistics have been used for drawing up Frequency distribution tables and percentages, mean value and standard deviation measuring. Inferential statistics have been used for understanding the relationships between variables. For understanding the correlation between Qualitative data X has been used, and for understanding the intensity of correlation between these variables contingency coefficient has been used. For Quantitative data Z statistical test and Pearson's correlation coefficient and leaner regression has been used and for showing the presence of a positive relationship between the mean value of the men and women's knowledge, t-test has been used.

The criterions of measuring the numbers of correct answers to the questions were on the basis of objects that equated to good, average and poor knowledge. So in the second object, the total correct answers between (9 - 12) were good, (5 - 8) were average and (0 - 4) were poor and about the third object, the total correct answers between (7 - 9) were good, (4 - 6) were average and (0 - 3) were poor.

Results and Discussion

Findings about demographic characteristics showed that most of the participants (67.5%) were men. 83% of participants were between 20 - 39 years old of which the mean value and standard deviation were 33.3 and 8.28. About the educational level most of the samples (48%) were diploma graduates. 63.5% were married and 32% were single. Most of the passengers (52%) had non-governmental and 22% had governmental jobs. 22% of passengers were traveling to visit their families, 21% for trading and 19% for touring. 50.5% of passengers were traveling to Europe, 20.5% to Arabic countries, 14.5% to north and south Asia and 15% to U.S.A. About 49% of passengers had used informational sources to get knowledge about the ways of prevention and transmissions of HIV (the mean value was 1.85 and standard deviation was 1.005). 30.5% of participants had traveled abroad more than 3 times (the mean value was 2.46 and standard deviation was 1.18).

Findings about the knowledge of non-pilgrimage passengers about the ways of AIDS transmission and prevention showed that 49.2% of females and 48.1% of men had average knowledge. T-test did not show any positive relationship between the mean value of knowledge and sex but the Pearson's correlation coefficient showed positive relationship between age and knowledge ($r = 0.14$)($p < 0.05$). Most of the passengers (69.4%) who had used the same informational sources, had average knowledge and 73.3% of passengers who had used three informational sources had good knowledge.

Pearson's correlation coefficient showed the positive relationship between the numbers of informational sources and the knowledge of the ways of AIDs transmission ($r=0.51$)($p<0.05$). Findings showed that 49.2% of passengers who had traveled abroad more than three times had good knowledge and 50.8% of passengers who were traveling abroad for the first time had average knowledge (Table

1). Pearson's correlation coefficient showed the positive relationship between the times of traveling and the passengers' knowledge about AIDS (r=0.23) (p<0.05).

46.9% of participants who had diploma had average knowledge whereas 49.4% of passengers who had university education had good knowledge (Table 2). X showed the positive relationship between educational level and knowledge about the ways of AIDs transmission (p<0.05).

72.4% of passengers who were traveling to the U.S.A had good knowledge and 55.5% of passengers who were traveling to Europe had average knowledge (Table 3). X showed the positive relationship between knowledge and the continent of destination (p<0.05).

50.4% of married passengers had average knowledge about the AIDs transmission but X didn't show any positive relationship between knowledge and marital situation.

About prevention of AIDs which was related to the third objective, t-test showed the positive relationship between the knowledge of women and men (p<0.05). 44% of passengers between 20 - 39 years old had average knowledge about prevention of AIDs. Pearson's correlation coefficient showed (r=-0.34) the reversed relationship between knowledge and prevention. Z statistical test showed that this relationship is positive (p<0.01).

46.9% of participants who had used the same informational sources had poor knowledge and the Pearson's correlation coefficient showed the positive and reversed relationship between the numbers of used informational sources and the knowledge of AIDS prevention (p<0.05) (r=- 0.67) and in this relationship the participants who had diploma had average knowledge. X showed the positive relationship between educational level and the knowledge of AIDS prevention (p<0.05).

More than half of the participants (51.3%) who had non-governmental jobs had average knowledge and 43.2% of passengers who had governmental jobs had good knowledge about AIDS prevention (Table 4). X showed the positive relationship between passengers' job situation and knowledge about AIDs prevention (p<0.05).

Conclusion

Findings showed that most of the participants (67.5%) were men and 83% of participants were between 20 - 39 years old of which 42% of were between 20-29. Shahcheraghy said that the relationship between AIDS and society related to different factors one of which is age because in countries in which AIDS is epidemic, most of the affected persons are between 20-39 years old[12]. All of the factors like society, economy, patterns of life cultures and politics which can increase the risk of AIDS should be recognized to provide prevention strategies[13].

In this study, the maximum of good knowledge (67.3%) was from passengers who had used more than three informational sources but 71.3% of passengers who had used just one informational source, the source was mass media. Parsi nia, the quotation of W.H.O, said that Mass media should be accessible for people quickly because "Health for All" is the purpose[14].

Mass media should remind the subjects and encourage people continually. More than half of the non-pilgrimage passengers (48.5%) who were traveling abroad had average knowledge about the ways of AIDs transmission. Knowledge has a very important role in health promotion, so people should have been aware about the role of healthy behaviors, so they perceive tha thealthy behaviors are the only way to be healthy[11].

For example, 37.5% of passengers believed that AIDS can transmit with insects and 23.5% believed that it can be transmitted via public toilets. Findings about the role of training about AIDS for increasing the knowledge of medical students' showed that before training 10% of students thought that insects can transmit AIDS but after training it became 1%[15].

Since, AIDS become a very important problem all over the world, the person's destination is not very important but it is important that they have enough knowledge about AIDS prevention."

In this research, more than half of the passengers who were going to Asia had average knowledge about the ways of AIDS transmission. W.H.O stated that Asia is in the second epidemic phase and HIV virus is spreading very quickly[16].

About half of the non-pilgrimage passengers(43.5%) who were traveling abroad had average knowledge about AIDs prevention and their knowledge had a positive relationship with characteristics like age, sex, level of education, job, continent of destination, the numbers of informational sources and the times of traveling.

Reyn said that with due regard to the epidemic phase of AIDs and developing of world communication webs and increase of international passengers, so passengers should have considered two important points. Firstly, recognizing the risk factors for avoiding HIV/AIDs and secondly, training the passengers in prevention of infection and suffering from AIDS. So, this means they should have been trained before traveling[17].

Findings in this research showed that there is a positive relationship between passengers' age and educational level with their knowledge, so it is proposed that related personnel (Health, Educational, Cultural and Ministries) include useful information in text-books for informing students about AIDS and the ways of transmission and prevention of it.

Findings showed that passengers who were traveling abroad didn't have sufficient and suitable knowledge about AIDS and its modes of transmission and prevention, so it is proposed that personnel of the international airport with coordination of Health and AIDS Control Committee of Health Ministry give the passengers simple facts about AIDs. Pyda stated that for international passengers' health protection should have increased their health information, therefore training is one of the ways to increase knowledge. So passengers

should have been trained for 1 or 2 minutes before flying, with suitable subjects[18].

Because AIDS is a fatal disease and can affect every age, sex, race, especially the young generations, in all countries millions of passengers arrive and depart every year, so health training is very important.

Researchers hoped that other researches like "Investigation of passengers' educational needs about AIDs and its transmission and preventive ways", will be based on the results of this research.

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Table1: Knowledge about the ways of AIDS transmission according to the times of traveling to abroad (n=200)

Times of traveling to abroad

Knowledge	once	twice	third	more than three times
Poor	9(15.8%)	4(3.3%)	1(3.7%)	2(3.3%)
Average	29(50.8%)	28(50.9%)	10(37%)	29(47.5%)
Good	19(33.4%)	23(41.8%)	16(59.3%)	30(49.2%)

Table2: Knowledge about the ways of AIDs transmission according to educational level (n=200)

Educational level

Knowledge	< Diploma	Diploma	University education
Poor	5(20%)	8(8.3%)	3(3.8%)
Average	15(60%)	45(46.9%)	37(46.8%)
Good	5(20%)	43(44.8%)	39(49.4%)

Table3: Knowledge about the ways of AIDS transmission according to continent of destination (n=200)

Continent of destination

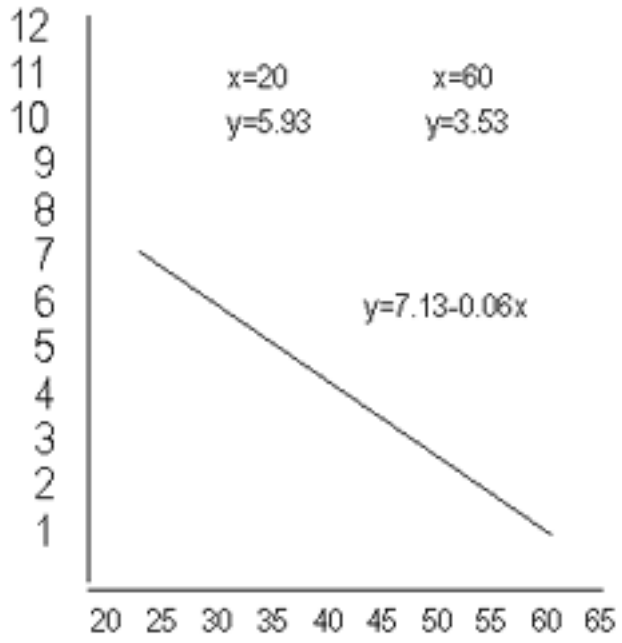
Knowledge	Europe	U.S.A	Asia
Poor	6(6%)	2(6.9%)	6(11.8)
Average	56(55.5%)	6(20.7%)	35(50%)
Good	27(38.6%)	39(38.5%)	21(72.4%)

Table4: Knowledge about the ways of AIDs transmission according to passengers' job situation (n=200)

Job situation			
Knowledge	**governmental**	**non-governmental**	**housewife**
Poor	10(22.7%)	30(25.6%)	14(35.9%)
Average	15(34.1%)	60(51.3%)	12(30.8%)
Good	19(43.2%)	27(23.1%)	13(33.3%)

Regression line (diagram 1) showed the equation of this correlation.

(Y = a + bX, a and b has been calculated from the related formula which is equal to Y = 7.13 - 0.6



KNOWLEDGE, ATTITUDES, AND BEHAVIOR RELATED TO HIV/ AIDS AND OTHER SEXUALLY TRANSMITTED DISEASES AMONG ADOLESCENTS: IN THE CONTEXT OF BANGLADESH

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ABSTRACT

The study examined the existing research findings on adolescent knowledge, attitudes and behavior related to HIV/AIDs and other sexually transmitted diseases in Bangladesh. It is demonstrated that both adolescents and young adults had low knowledge and awareness about AIDs and other sexually transmitted diseases. Findings suggest that adolescents who live in an urban area are more aware of AIDs as compared with rural counterparts. Education of either husband or wife is positively associated with knowledge of AIDs. Mass media plays a great role in gaining knowledge of AIDs. Mobility of adolescents outside the place of residence is an important factor for achieving information on HIV/AIDs. Those adolescent who are permitted to move outside place of residence are more aware of AIDs. Our analysis also reveals that a large portion of adolescents and young adults have never discussed with their spouse HIV/AIDs prevention methods. The findings of the study reveal that adolescents whose husbands were using condoms were one of the most AIDs aware groups in the adolescent's community.

Key words: AIDs, STIs, Mass media exposure, Logistic regression analysis, Bangladesh.

Introduction

Adolescence has been defined by WHO as the period of life spanning the ages between 10 and 19 years (WHO, 1999). Adolescents constitute a significant portion of the population of Bangladesh. A large number of them are out of school, malnourished, working in vulnerable situations, getting married early and are sexually active although most of them do not have knowledge about contraception and safer sex. According to The National Census of 2001, as many as 36.3 million Bangladeshis are adolescents (10-19 years of age) constituting 23% of the population. Among them 8.8 million girls and 9.3 million boys fall in the age group of 10-14 years while 8.7 million girls and 9.5 million boys belong to the 15-19 years age group. It is estimated that about 10.8 million adolescents/youths will be added to the existing population making the total 49.3 million, i.e., 36% of the total population in 2006 (Alauddin, 1997).

In recent years the reproductive and sexual health of adolescents has been givenincreasing attention. More than half of all new HIV/AIDs virus infections today occur in young people between ages of 15 to 24 (WHO, P/133). An over populated country like Bangladesh is still fortunate to have low HIV/AIDs prevalence (less than one per 1000 adults) as compared to neighbouring countries such as India, Nepal, Thailand and Myanmar (PRB, 2002, P/21). But the presence of many on textual, behavioral and biomedical factors indicate that Bangladesh is at the beginning of an HIV/AIDS epidemic threat (Akhter, H.H., M-e-E Elahi, F. Karim, and K.K. Saha. 1999) .Adolescents are more vulnerable in the question of AIDs i.e., physiological, behavioral, and social risk factors surrounding HIV among adolescents. Global estimates suggest that more than half of all new HIV infections occur among young people 15-24 (WHO-2003, P/19).

The risk of contracting STIs including HIV/AIDs is a major public health concern for adolescents. Since the sexual habits of unmarried girls and boys of this age group are changing rapidly, knowledge of STIs is crucial. A comprehensive study conducted among adolescents reported that only 13 to 14 percent of them were aware of syphilis and gonorrhea. About one-half of the adolescents could not correctly identify a single STI symptom and more than one-half of the adolescents could not correctly identify a mode of STI transmission. Although social customs usually discourage premarital or extra-marital sexual relationships, the scant evidence from small-scale, in-depth qualitative studies indicate that such relationships are more frequent than commonly believed. These groups are especially vulnerable to unwanted pregnancy and disease, including STIs and HIV infection, and the stigma and discrimination associated with either condition. According to a study only 17% adolescent married girls have heard about AIDs, and if they need treatment for the disease, they visit

quacks, pharmacists ('compounders'), Kabiraj, Hekim and other homeopathic doctors.

Though many of the adolescents have heard about HIV/AIDs, most of them live in a traditional context, with few discussions regarding reproductive health in the family or community. Adolescence represents a window of opportunity to prepare for a healthy adult life. Adolescents lack information and understanding about their own sexuality. Both the male and female adolescents are found to be almost equally vulnerable, the girls being especially more vulnerable. Boys suffer from peer pressure to indulge in early sexual activities, smoking and drug abuse to prove that they are men. As they mature and become sexually active, they know little about STI/AIDs, and cannot identify diseased partners. They are vulnerable to contracting RTIs/STIs/HIV. In early initiation of sex, adolescents are more likely to have multiple sexual partners. In addition, STD pathogens can more easily penetrate the cervical mucus of adolescents than that of older women (Hossain et al., 2003). Although some adolescents appear to weigh the pros and cons of engaging in certain behaviors, not all decisions are made rationally. Much of adolescent participation in unprotected sexual intercourse may, in fact, be due to a simple failure to make a decision (or the making of default decisions) because of ambivalence about pregnancy or STIs, particularly among younger adolescents. As part of their decision-making process, adolescents often look to their teachers, peers, and school environment for clues regarding various aspects of sexual behavior and to evaluate the degree, to which their beliefs agree or disagree with group norms (Koenig MA et.al , 1998).

However, it is clear that adolescents are especially vulnerable to HIV/AIDs. Consciousness about AIDs is not satisfactory. Especially, adolescents have poorer knowledge than young adults. The present study will be helpful for the policy makers and planners and take essential steps to gain more knowledge on AIDs among adolescents.

Data Collection and Methodology

This study utilizes the data extracted from 1999-2000 Bangladesh Demographic and Health Survey (BDHS), which were conducted under the authority of the National Institute of Population Research and Training (NIPORT) of the Ministry of Health and Family Welfare. The BDHS 1999-2000 employed a nationally representative two-stage probability sample design where 10,544 ever married women were interviewed successfully. The data was collected from six administrative divisions of the country- Barisal, Chittagong, Dhaka, Khulna, Rajshahi and Sylhet. This paper is based on 1,622 ever married female adolescents aged 10-19 years, which is about 17% of the total sample. It also included ever married young adults for comparative purposes. There are 3,944 ever married young adults whose age limit is 20-29. A module on awareness of AIDs was included in the BDHS 1999-2000 for the first time, which was used for the present study. Knowledge on, and awareness of AIDs were assessed by inquiring wheather they had ever heard of AIDs, and if so, sources of knowledge, perceptions about the avoidance of the diseases, and understanding of its consequences were also assessed.

Methodology

Data analytic method envisaged in this paper is percentage distribution and logistic regression analysis. A brief discussion on these methods has been incorporated in following subsections.

Percentage Distribution

Percentages distribution is employed in this study for getting the real picture of the knowledge, attitudes, and behavior related to HIV/AIDs and other sexually transmitted diseases among adolescents.

Logistic Regression Analysis

Logistic regression, also called logit regression, is used when the response variable may be quantitative, categorical, or a mixture of the two.

In logistic regression, just as linear regression, the codes for the independent variables must be meaningful. We must decode the values of the independent variables by creating a new set of variables that correspond, in some way, to the original categories. When we have a variance with more than two categories, we must create a new variable to represent the categories. The number of new variables required to represent a categorical variable is one less than the number of categories. For example, if instead of the actual values for education of the respondents, we had values of 0, 1 depending on whether the value was `no education`, and `some education`. The value ``no education`` would be represented by codes of 0 and it is called reference category. If we use indicator variables for coding, the coefficient for the new variables represent the effect of each category compared to a reference category. The coefficient for `some education` is the change in log odds when the lower primary compared to no education. The coefficients for no educations are necessarily zero, since it does not differ from itself. The logistic regression procedure will automatically create new variables for categorical variables.

Knowledge of HIV/AIDs

Table-1 and Table-2 show the percentage of adolescents respectively, who have heard of HIV/AIDs, by background characteristics. The results show that the urban adolescents (55.6 percent) were more aware of AIDs compared to their rural counterparts (table-1). Knowledge on AIDs varied significantly in different parts of the country. About 37.4 percent of the adolescents of Dhaka division had heard of AIDs. More than one third of the adolescents of Barisal and Khulna division had ever heard of AIDS, while only 20.7 percent of adolescents of Rajshahi division had heard of AIDs. Education, of the respondents or of their husbands, had a linear and positive relationship with having knowledge of AIDs. About 56.4 percent of the adolescents with secondary/higher education had heard of AIDs compared to 25.0 percent with primary education and 10.3 percent with no education. A similar scenario was also found in case of husband's education. Access

to mass media played a significant rule in having knowledge of AIDs. About 47.2 percent of adolescents who had access to mass media had ever heard of AIDs, while only 11.9 percent without such access had heard of AIDs.

The results in table-1 also elucidates that about 32.3 percent of the adolescents who were allowed to go outside by themselves, had heard of AIDs compared to 43.2 percent who did not or were not allowed. More than one fifth (64.9 percent) of the adolescents whose husbands were using a condom had heard of AIDs. About 36.4 percent of the adolescents who were using other methods had heard of AIDs. One third (28.1 percent) of the adolescents who were not using any methods had ever heard of AIDs. Husband-wife discussion was positively associated with having knowledge on AIDs. About 35.5 percent of the adolescents who discussed FP with their husbands had heard of AIDs as compared to 29.3 percent who did not have any such discussion.

Regarding the sources from which the adolescents heard about AIDs, the major sources of information on AIDs were found to be: radio, television, newspaper/magazine, Pham plate/ poster, health workers, schools/ teachers/community meeting and friends/relatives.

From table -2 it was found that most of the adolescents (20.1 percent) have heard about AIDs from TV, 11.7 percent from radio and friends/ relatives. Moreover, different sources such as newspaper / magazine pamphlets / posters health workers school / teachers /community meeting and others have a small contribution to growing consciousness about AIDs among the adolescents.

Knowledge of Correct Ways to Avoid AIDs

To ascertain knowledge about modes of HIV/AIDs transmission, respondents were asked general questions as to whether there is anything a person can do to avoid getting AIDs or the virus that causes AIDs and, if so, what can be done. The results of the responses are shown in Table-3. Among adolescents only 31.2 percent had known at least one way to avoid getting AIDs. About 15.8 percent of the adolescents reported that they would like to avoid AIDs by using a condom during sex and 10.5 percent reported that AIDs can be prevented by avoiding sex with prostitutes.

Avoid multiple partners is a way to prevent AIDS, was reported by 9.1 percent of the adolescents. Some of the adolescents (5.1 percent) have knowledge about the prevention of AIDS by limiting sex with one partner. Abstaining from sex (5.4 percent) and avoid non-sterilized/disposable injections (4.0 percent) are another way to avoid AIDs.

Knowledge of HIV/AIDs Related Issues and Communication with Spouses

Respondents who know of HIV/AIDs were asked whether they think that a healthy-looking person can have the AIDs virus and whether they think that HIV/AIDS can be transmitted from a mother to a child. The results of the responses are shown in Table 4. Among adolescents who know of HIV/ AIDs, 67.45 percent say that a healthy-looking person can have the AIDS virus and the corresponding figure for young adults is 70.7 percent.

Table-4 also shows that 89.6 percent of the adolescent women know that it can be transmitted from a mother to her child. It is also observed from table-4 that a large portion of adolescents and young adults never discussed with their spouse HIV/AIDs prevention methods and only 11.85 percent of adolescents ever discussed HIV/AIDs prevention methods with their spouse and the corresponding figure for young adults is 17.2 percent.

Awareness about Sexually Transmitted Infections (STIs)

Table-5 shows the percentage of adolescents who know of the signs and symptoms of sexually transmitted infections (STIs). Among the adolescents awareness about STIs is so poor. Various factors are involved in the spread of STIs. Adolescents are more vulnerable to the risk of STIs. The true incidence of STIs will never be known because of secrecy that surrounds them. Most of them are not even noticeable. About 91.5 percent of the adolescents had no knowledge about sexually transmitted infections. Only 1.8 percent of adolescents and young adults have known about one symptom of STIs. A few adolescents and young adults know about two or more symptoms of STIs. The same pattern is also observed for all women. Various reasons may be attributed for this cause - this may be due to the limited access to sexual health information, poverty, unemployment, inadequate health care facilities etc.

Logistic Regression Analysis

Knowledge of adolescents of AIDs was considered as an outcome variable (dependent variable) which was dichotomized, taking the value 1 for those who had ever heard of AIDs and 0 otherwise. The results and discussion of logistic regression model are presented in table-6.

Residence (urban-rural) was a significant predictor of knowledge of AIDs. The analysis revealed that the urban adolescents were 3.15 times more likely to have knowledge of AIDs compared to their rural counterparts. Table-4 also shows that knowledge of AIDs varied significantly in different parts of the country. The adolescents of Dhaka division are 1.159 times more likely to have knowledge of AIDs as compared to Barisal division. However, the adolescents of all other divisions areless likely to have knowledge of AIDs compared to the adolescents of Barisal divisions. Education was another significant predictor of knowledge of Aids.

The adolescents with secondary/ higher education were 4.5 times more likely to have knowledge of AIDs compared to the adolescents with no education. Similar findings were also observed for the adolescents whose husbands had secondary/ higher education. Knowledge of the adolescents of AIDs was also significantly associated with their use of contraceptives. The adolescents whose husbands were using condoms were 1.8 times more likely to know about AIDs compared to their counterparts who were not using any method of contraception.

The adolescents who were using any other methods were 1.199 times more likely to know about AIDs compared to their counterparts

who were not using any method of contraception. The young adults also show the same pattern of results. Among the adolescents, who were permitted to go out they had 1.436 times more knowledge about AIDs than those who were not permitted.

Conclusion and Recommendation

It is demonstrated that both adolescents and young adults had low knowledge and awareness about AIDs. Adolescent friendly environments are not available here. Moreover, adolescents tend to avoid consulting sexual information on HIV/AIDs. Although HIV/AIDs prevalence in Bangladesh is not alarmingly high, the high-risk behavior is well established. It is the right time for growing consciousness among the adolescents about HIV/AIDs.

Findings suggest that adolescents who live in an urban area are more aware of AIDs as compared with rural adolescents. It may be due to the available opportunity or easy mobility of urban adolescents. Regional variation did not show significantly more knowledge of HIV/AIDs among the adolescents and young adults. Education either of husband or wife is positively associated with the knowledge of AIDs. Mass media plays a great role in giving knowledge on AIDs. Mobility of the adolescents to the outside place of residence is an important factor for achieving information on HIV/AIDs. Those adolescents who are permitted to move outside place of residence are more aware of AIDs.

The findings of the study reveal that adolescents whose husbands were using condoms were one of the most AIDs aware groups in the adolescent community.

By analyzing the above findings the following recommendations are made:

1. The findings of this study suggest providing available educational opportunities for all. Only education can help a person to know himself and his surroundings. Special emphasis should be given to the female adolescents for education. The Bangladesh government has already taken on such programs for adolescents.
2. In our study we observe that mass media plays a great role in gaining knowledge on AIDs/STIs. Besides, some additional programs such as face-to-face communication and sexual education in institutions may be effective. Governments should encourage religious leaders, teachers, health workers, principles of mosques/church/temples and community leaders to achieve the success in HIV/AIDS/STDs related problems.
3. A campaign is needed about condom use during pre- and extra-marital sex. Further, adolescents may have difficulties in obtaining condoms and knowing how to use them correctly. Fortunately, family planning campaigns have endeavoured to popularize the use of condoms as a method of contraception through a behavioral change campaign (BCC). Nevertheless, adolescents need to have the skills to use condoms consistently and correctly.
4. Integrated reproductive health services that include STI prevention and screening can attract adolescents.

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Table-1: Percentage distribution of adolescents and young adults who had heard of AIDs by some selected characteristics, BDHS 1999-2000.

Characteristics	Adolescents	Young Adults	All Women
Place of residence			
Rural	25.0	26.2	22.8
Urban	55.6	66.8	62.7
Region of residence			
Barisal	41.2	38.1	35.1
Chittagong	30.7	40.1	35.7
Dhaka	37.4	50.2	43.0
Khulna	39.9	40.4	37.9
Rajshahi	23.6	27.2	25.5
Sylhet	20.7	26.4	26.2
Respondent's education			
No Education	10.3	15.6	13.8
Primary	25.0	28.9	29.7
Secondary/higher	56.4	74.9	72.0
Husband's education			
No Education	14.9	16.5	14.4
Primary	28.3	27.9	25.5
Secondary/higher	56.0	66.2	60.3
Mass media			
No	11.9	13.1	11.3
Yes	47.2	59.4	56.6
Going outside place of residence			
Not allowed	25.1	22.4	20.4
Allowed-with someone	43.2	43.8	38.5
Allowed alone	32.4	39.3	35.6
Current contraceptive use			
Not using	28.1	33.4	29.0
Using-condom	64.9	76.9	71.6
Using-any other method	36.4	40.3	37.2
Discuss FP with husband			
No	29.3	34.8	31.3
Yes	35.5	43.3	38.1

Table-2: Percentage distribution of adolescents and young adults by reported sources of AIDS information, BDHS 1999-2000.

Sources of AIDS information	Adolescent	Young Adult	All Women
Radio	11.7	24.6	11.3
TV	20.1	49.2	25.6
Newspaper/ Magazine	1.6	10.6	4.8
Pamphlets/poster	2.0	4.2	1.9
Health workers	2.3	7.3	2.3

Schools/teachers/ Community meeting	0.7	1.1	0.9
Friends /Relatives	11.7	25.7	11.1
Others	0.5	1.8	1.6
Knowledge of AIDS from multiple sources			
No source	66.2	53.8	65.1
1 source	19.4	21.2	17.5
2 sources	10.5	17.6	10.1
3 sources	2.5	4.2	4.2
4 sources	1.2	2.5	1.9
5 and more sources	0.2	0.7	0.3
MEAN	1.7	1.8	0.9
N	1232	3012	5632

Table-3: Percentage distribution of the adolescents and young adults according to ways to avoid AIDs (Only for thise who reported at least one source).

Ways to Avoid AIDS	Adolescent	Young Adult	All Women
	N=1232	N=3012	N=5632
Abstain from sex	5.4	15.6	7.5
Use condom during sex	15.8	39.6	15.5
Avoid multiple partners	9.1	21.9	10.6
Limit sex with one partner	5.1	11.7	6.1
Avoid sex with prostitutes	10.5	39.0	17.6
Avoid sex with homosexuals	0.0	1.8	0.7
Avoid unsafe blood transfusion	1.0	6.3	2.7
Avoid non-sterilized/ disposable injections	4.0	20.1	9.1
Avoid sharing razor bloods	0.5	1.6	0.9
Avoid kissing	0.2	1.2	0.5
Avoid mosquito bites	0.3	0.9	0.5
Seek protection from traditional heather	0.0	1.0	0.8
Knowledge category to avoid getting AIDS			
Doesn't no specific way	9.8	14.6	7.9
Doesn't no if AIDS can be avoided	39.1	6.0	33.0
Believes no way to avoid AIDS	14.1	21.9	12.3
Number of ways correctly reported			
1	14.6	35.7	18.1
2	12.6	28.1	13.5
3	7.5	21.3	9.5
4	3.5	9.8	4.3
5+	2.9	2.1	0.8

Table-4: Percentage of adolescents and young adults who have heard of HIV/AIDS by perception of AIDS related issues and communication with spouses, according to BDHS Survey 1999-2000

Respondents	Percentage of ever-married women who think:		Discussion of HIV/AIDS with spouse	
	A healthy looking person can have the AIDS virus	HIV/AIDS can be transmitted from a mother to a child	Ever discussed HIV/AIDS-Prevention methods	Never discussed HIV/AIDS Prevention methods
Adolescents	67.45	89.65	11.85	54.3
Young Adults	70.7	92.05	17.2	48.8

Table-5: Percentage of adolescents and young adults aware about signs/symptoms associated with sexually transmitted infections (STIs), according to BDHS Survey 1999-2000.

Awareness about signs/ symptoms about STIs	Adolescents	Young Adults	All
No Knowledge	91.5	89.3	89.1
Does not know any symptom	6.3	6.8	6.7
Knows one symptom	1.8	2.7	2.7
Knows two or more	0.3	1.2	1.5
Total	1514	3910	10544

Table-6: Logistic regression analysis about knowledge of AIDS among the adolescents and young adults by some selected characteristics BDHS, 1999-2000.

Characteristics	Adolescents		Young Adult	
	Coefficient of (β)	Odds ratio	Coefficient of (β)	Odds ratio
Place of residence				
RuralRc		1.000		1.000
Urban	1.147	3.150***	1.234	3.435***
Region				
BarisalRc		1.000		1.000
Chittagong	-0.426	0.653	-0.282	0.754*
Dhaka	0.147	1.159***	0.497	1.644**
Khulna	-0.76	0.927*	-0.653	0.938**
Rajshahi	-0.601	0.548**	-0.354	0.702*
Sylhet	-0.194	0.823*	-0.524	0.592**
Respondent's education				
No EducationRc		1.000		1.000
Primary	0.847	2.333**	0.399	1.482*
Secondary/higher	1.804	4.552***	1.716	5.562***
Husband's education				
No EducationRc		1.000		1.000
Primary	0.481	1.615**	0.394	1.483**
Secondary/higher	0.980	2.664*	0.939	2.558***
Current contraceptive use				
Not usingRc		1.000		1.000
Using-condom	0.633	1.884*	0.476	1.609**
Using-any other method	0.182	1.199*	0.188	1.125*
Women has permission to go outside place of residence				
No permissionRc	0.3	1.000	0.4	1.000
Permitted	10	1.436***	44	1.660***

Note: P<0.01, P**<0.001, P***<0.0001 Rc=Reference category*