

Masturbation Experience: A Case Study of Undergraduate Students in Bangladesh

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Abstract

In Bangladesh, masturbation is considered an impious activity. It has been widely documented that free access to internet porn has led to high incidences of masturbation, especially among the youth. This study attempts to understand the prevalence and practice of masturbation among university students in Bangladesh. The methodology adopted was semi-structured interviews with 299 students from a private university in Khulna, west Bangladesh. The sample was selected using stratified sampling techniques from different academic departments (strata) of the university. Chi-square test and binary logistic regression were performed to examine the association between masturbation and access to online pornography.

The prevalence of masturbation among the students was 33.00% and it was found to be significantly higher among male students (42.20%). Students who watched pornography at least once a week or once a month were more likely to masturbate, with OR 161.43 (OR: 161.43, CI=38.64-674.39) and 112.3 (OR: 112.30, CI=22.80-553.22).

The study provides the foundation for understanding the practice of masturbation among students in Bangladesh, with the aim of normalizing this activity.

Keywords

Masturbation; pornography; university students; Bangladesh; prevalence

Introduction

Masturbation or solitary sex is defined as an act of exciting one's sexual organs by rubbing, stroking, pressing, folding or other forms of manipulation to reach orgasm (Kabbash, Ali, Kabbash & El-Naga, 2017). It is not only a way of familiarizing with one's body but it has also been viewed as an intervention against premature ejaculation and orgasmic disorder (Gerressu, Mercer, Graham, Wellings & Johnson, 2007). Masturbation can form part of sexual foreplay (Knowles, 2002). Although the history of masturbation is filled with myths and negative connotations (Harvey 1993; Hodges 2005), evidence suggests that it is a normal part of human sexual development and behavior. Over the centuries, attitudes towards masturbation have become more liberal; it is now widely viewed as an acceptable form of

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sexual release (Lipsith, McCann & Goldmeier, 2003). Further, it is a safe sexual activity that can contribute towards improved sexual health and a more rewarding sex life (Klein, Rettenberger & Briken, 2014).

However, in Bangladesh, an overwhelmingly (90.00%) Muslim-majority country, masturbation is generally regarded as a profane activity. Young people are discouraged from masturbating, in the same way that masturbation has been viewed as sinful or undesirable among other religious traditions (Bosch, 2005; Ghisa, 2010). Therefore, in Bangladesh, it is rarely acceptable to talk openly about masturbation because it is considered embarrassing and socially intolerable. It is likely that for this reason, no study on masturbation has been carried out in Bangladesh; there are only very few of studies on this topic in other Muslim-majority nations (Shekarey, Rostami, Mazdai & Mohammadi, 2011). Therefore, there are no previous academic studies to build on the present research, whose aim is to understand the prevalence and practice of masturbation among young adults in Bangladesh, in the hope of dispelling existing stigma or taboo on that subject.

Review of Relevant Literature

The current study reviewed related studies in the context of developed countries due to lack of published findings on Bangladesh. There have been several studies on masturbation, pornography, and the link between masturbation and pornography (Harper & Hodgins, 2016; Chi, Yu & Winter, 2012; Alsughier, 2015). In Britain, among those aged between 16 and 44 years, factors, such as marital status, having children, social class, education, and ethnicity were significantly associated with masturbation activities (Gerressu et al., 2007). Masturbation was found to be one of the most common sexual behaviors among Iranian teenagers in a study which explored behaviors and attitudes towards masturbation. Difficult friendships, stress and anxiety, family problems, lack of affection and related social factors were all found to have an association with masturbation (Shekarey et al., 2011). A study carried out in Portugal, Croatia, and Norway with participants with an average age of 40 found frequent masturbation was positively associated with sexual boredom, frequent pornography use, and low relationship intimacy (Sobieraj, Fabin, Wilczyński & Krysta, 2013). Wéry & Billieux (2016) found that watching online pornography was the most prevalent online sexual activity, and its problematic use became associated with solitary-arousal activities, higher sexual desire, lower overall sexual satisfaction, and poorer erectile function.

A study of US adolescents aged between 14 and 17 years found the prevalence of masturbation was higher among males (Robbins, 2011). Based on results of a meta-analysis from 177 sources, males aged over 18 years showed more positive attitudes towards masturbation than females, whereas females aged below 18 had more positive attitudes than males under 18 (Oliver & Hyde, 1993). The religious and cultural pressure in Bangladesh that a woman should be sexually inexperienced before marriage may be another cause for lower frequency of female masturbation (Chi et al., 2012). On the other hand, Klein et al. (2014) found that a higher degree of female hypersexual behavior was considerably associated with high masturbation frequency, number of sexual partners, and watching pornography. Variables and associations in these studies informed the methods of the present study.

Religious traditions vary in both their historic and contemporary views of masturbation. Generally, contemporary Islam does not approve of masturbation except in some selective circumstances, such as within a wedlock (Sunnah, n.d.). Muslims are encouraged to marry early to reduce their sexual desires. Roman Catholic education has been known to describe masturbation as a sexual imbalance (Malone, 1974); on the other hand, no claim is found in

the Bible that explicitly rejects masturbation labelling it as sinful (Patton, 1985). Even in recent years, masturbation continues to be regarded as sinful by the Roman Catholic, Eastern Orthodox, and Oriental Orthodox church (Matusiak, 2018; Catechism of the Catholic Church, n.d.) as reproduction continues to be perceived as the sole acceptable reason for sexual activity, and the non-reproductive emission of semen is seen as a defiance of the divine directive to reproduce. Orthodox Judaism disapproves of male masturbation, and if emission of semen occurs accidentally, this results in one day of impurity (Gagnon, 2015), thereby they are not allowed to worship at the synagogue. Hinduism is not opposed to masturbation though it recommends compulsory bathing after the act as a way of purifying the individual (Muraleedharan, 2014). Buddhism does not condemn masturbation, rather, it guides one on how to move beyond sexual desire (Higgins, 2018). Religious texts and teachings on female masturbation are scarce. Research suggests men are more likely to masturbate than women, and with greater frequency (Pinkerton, Bogart, Cecil & Abramson, 2003). It is believed the stigma surrounding female masturbation has reduced in the Western world, and that women's self-reporting of masturbation has increased since the publication of Pinkerton's work in 2003.

In Bangladesh, an important indicator of adolescence is the production of semen and menstruation (Bosch, 2005). Boys are encouraged to avoid masturbation and are taught that releasing semen weakens their body and affects their reproductive health. Young men are also cautioned that several sexual diseases can occur as a result of masturbation (Bosch, 2005). Therefore, this practice considered sinful and harmful in the cultural, religious and health contexts in Bangladesh.

Masturbation appears to be largely influenced by pornography (Darkmoon, 2012). The internet is a common source of pornographic materials and online pornography is associated with frequency of masturbation (Porto, 2016). According to some studies, the trend of viewing online pornography is higher among undergraduate and post graduate students (Iqbal & Mian, 2014; Chelsen, 2011; Ephraim, Chinweike & Michael, 2011). There are approximately 800,000 university students in Bangladesh (Bangladesh Bureau of Educational Information and Statistics, 2016) and in 2016 there was an estimated total of 62 million internet subscribers in Bangladesh. Students can access the internet using their smartphones, laptops, tablets and desktops, as well as through their educational institutions (Roknuzzaman, 2006), although there is no direct evidence they are accessing pornography through these accounts. Nevertheless, based on Google search statistics, the word 'porn' has been searched 800,000 times in Bangladesh out of 611 million globally. Similarly, the word 'sex' was searched 2.2 million times and 'sex video' 400,000 times (Moni, 2013; Chowdhury, Chowdhury, Kabir, Perera & Kader, 2018). About 57% students from a study sample in Bangladesh reported possessing pornographic materials (Saha et al., 2015) and a recent study in Bangladesh revealed about 72% students consumed pornography at least once in their entire lives and approximately 67% accessed pornography during their high school (Al Mamun, Arafat, Ambiatunnahar & Griffiths, 2018). It is believed in Bangladesh social stigma, religious superstitions and cultural rigidity hinder the young population from practicing their sexual rights (Das & Roy, 2015).

Masturbation has been reported in various studies as a complex societal phenomenon (Bancroft, 2004; Coon & Mitterer, 2009). In the US for example, each second, more than 0.7 million people masturbate (Wysaski, 2011). In US, around 84.00% of men and 72.00% of women aged between 25 to 29 years masturbate (Herbenick et al., 2010). In Canada, 70 out of 100 married women and men masturbate occasionally (Coon & Mitterer, 2009), and around 58.00% of males and 42.00% of females aged 15 and 17 years old masturbate (Smith, Rosenthal, & Reichler, 1996). No comparative data is available for Bangladesh.

The present study also examined association between masturbation and access to online pornography among young adults, specifically university students, in Bangladesh. Given the negative social context and religious injunction against masturbation, this study provided self-reported evidence of masturbation to assess the impact of social taboo on masturbation among young adults in this country. The study also determined the prevalence of masturbation among university students in Bangladesh by examining a sample from a selected university in Bangladesh.

Methodology

Data source

Participants were recruited from a private university in Khulna division, West Bangladesh. This is the first and only private university in West Bangladesh which attracts students from different regions of Bangladesh and with different socioeconomic backgrounds and cultures. A survey was carried out between April and May 2016 to collect relevant data on the topic using a stratified sampling strategy. There were approximately 1,500 undergraduate students enrolled at the university during the time of data collection and there were eight academic departments. For this study, each department was considered as a primary sampling unit (PSU) so that sample size was distributed proportionally among all academic departments. The following formula was used to calculate a sample size from each department:

$$n = \frac{N}{1 + Nd^2}$$

Where n = required sample size, N = population size (students from each department), d = marginal error (we considered, $d = 0.033$), with a 95.00% confidence level. On an average, 38 students were randomly selected from each PSU. A total of 304 undergraduate students agreed to participate in this study, although five were excluded because they were not in the target age range of below 25 years. The final sample size was 299. Participation was voluntary, and informed written consent was obtained from the respondents before the interview. The respondents were briefed on the objectives of the study and the right of the participant to withdraw at any time from the study without any obligation. Participant anonymity and confidentiality were upheld, and no incentive, in cash or kind, was given to them for taking part in the study. The study was approved by the Institutional Review Board of First Capital University, Bangladesh.

Variable of the study

All face-to-face interviews were conducted using a semi-structured questionnaire. Pre-coded and open-ended questions were used to collect data pertaining to masturbation (self-stimulation of the sex organs, such as vagina or penis), and binary responses (yes/no) were recorded. This study included information relating to socio-behavioral characteristics, nature of interactions, study focus, sleeping habits and consumption of main meals. 'Socio-behavioral characteristics' included socializing with friends, including late-nights with them (socializing here refers to partying, late night gatherings, hanging out, watching movies, gossiping, and playing cards among others) and participating in social activities to create social awareness by participating or volunteering for non-profit and development organizations 'Nature of interactions' refer to arguments/fights with friends due to affairs/relationships and hanging

out with friends, and using social media, such as Facebook, Twitter and Skype to connect with others. 'Study factors' included regular university attendance and focus on study. 'Sleeping habits' and 'consumption of main meals' included going to bed on time and consuming three meals a day respectively.

Further, access to online pornography for at least one hour per month was recorded for overall consumption, male consumption and female consumption (see figures 1 & 2). In addition, demographic characteristics, such as age, sex, religion, parents' level of education, type of family, place of residence, monthly household income, mass media exposure and health problems (such as underweight, eye problems, blood pressure, etc.) were obtained.

Figure 1: Pornography consumption by gender

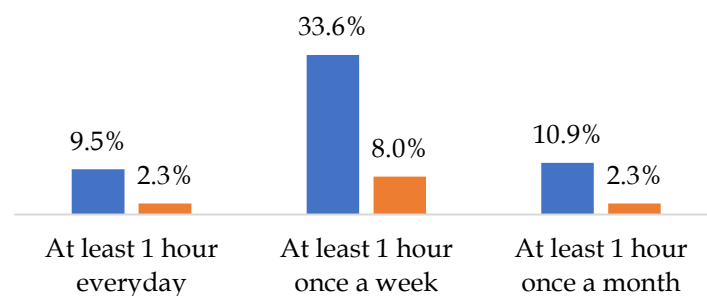
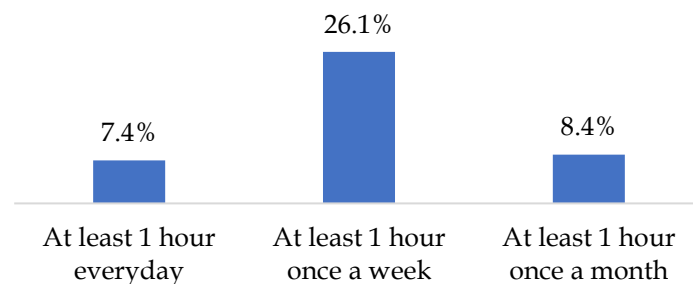


Figure 2: Frequency distribution of the respondents who watched online pornography



Analytical plan

Descriptive statistics using percentages where appropriate, and Chi-square (χ^2) test were used to evaluate the association between outcome (masturbation) and independent variables (covariates). A binary logistic regression model was used to examine the relationship between pornography and masturbation. The SPSS 20.0 package was used for all statistical analysis and significance level was set at $p < 0.05$.

Results

A total of 299 undergraduate students, 30.00% females and the rest males were recruited; the gender proportion reflects the student demographics at the university where this study was implemented. More than 70.00% of participants were aged between 21 and 25. More than 10.00% of parents of students were illiterate, and around 80.00% of the students are from the rural areas (Table 1). This suggests the students were generally of lower socio-economic status. Monthly household income of <10,000 BDT (approximately US\$120, annualized to <US\$2,640) was recorded for around 25.00% students (per capita GDP in Bangladesh was US\$1,466 in 2016) (The Daily Star, 2016). Around 18.00% of students reported some health problems.

Table 1: Association between masturbation and socio-economic as well as behavioral characteristics

Variables	Number (Percent)	Masturbate		P values (χ^2 test)
		No	Yes	
Age (in years)				
<20	70 (23.4%)	46 (65.7%)	24 (34.3%)	0.298
21-25	215 (71.9%)	141 (65.6%)	74 (34.4%)	
>25	14 (4.7%)	12 (85.7%)	2 (14.3%)	
Sex				
Male	211 (70.6%)	122 (57.8%)	89 (42.2%)	<0.001
Female	88 (29.4%)	77 (87.5%)	11 (12.5%)	
Religion				
Muslim	282 (94.3%)	189 (67.0%)	93 (33.0%)	0.487
Others (Hindus, Christians etc.)	17 (5.7%)	10 (58.8%)	7 (41.2%)	
Father's education				
No education	38 (12.7%)	25 (65.8%)	13 (34.2%)	0.763
Primary	76 (25.4%)	48 (63.2%)	28 (36.8%)	
Secondary	81 (27.1%)	55 (67.9%)	26 (32.1%)	
Higher secondary	43 (14.4%)	32 (74.4%)	11 (25.6%)	
Higher	61 (20.4%)	25 (65.8%)	13 (34.2%)	
Mother' education				
No education	47 (15.7%)	32 (68.1%)	15 (31.9%)	0.647
Primary	125 (41.8%)	80 (64.0%)	45 (36.0%)	
Secondary	90 (30.1%)	59 (65.6%)	31 (34.4%)	
Higher secondary	25 (8.4%)	20 (80.0%)	5 (20.0%)	
Higher	12 (4.0%)	8 (66.7%)	4 (33.3%)	
Type of family				
Nuclear	229 (76.6%)	153 (66.8%)	76 (33.2%)	0.865
Joint	70 (23.4%)	46 (65.7%)	24 (34.3%)	
Place of residence				
Urban	54 (18.1%)	32 (59.3%)	22 (40.7%)	0.209
Rural	245 (81.9%)	167 (68.2%)	78 (31.8%)	
Family head				
Father	261 (87.3%)	173 (66.3%)	88 (33.7%)	0.924
Mother	19 (6.4%)	13 (68.4%)	6 (31.6%)	
Elder brother	14 (4.7%)	9 (64.3%)	5 (35.7%)	
Others	5 (1.7%)	4 (80.0%)	1 (20.0%)	
Monthly household income (BDT)				
<10000	75 (25.1%)	46 (61.3%)	29 (38.7%)	0.638
10001-20000	100 (33.4%)	66 (66.0%)	34 (34.0%)	
20001-30000	72 (24.1%)	50 (69.4%)	22 (30.6%)	
> 30000	52 (17.4%)	37 (71.2%)	15 (28.8%)	
Do you read newspaper?				
No	28 (9.2%)	17 (63.0%)	10 (37.0%)	0.949
Everyday	145 (47.5%)	94 (66.7%)	47 (33.3%)	
one day in a week	116 (38.0%)	78 (67.8%)	37 (32.2%)	
one day in a month	16 (5.2%)	10 (62.5%)	6 (37.5%)	
Do you watch television?				
No	30 (10.0%)	21 (70.0%)	9 (30.0%)	0.329
Everyday	180 (60.2%)	125 (69.4%)	55 (30.6%)	

Variables	Number (Percent)	Masturbate		P values (χ^2 test)
		No	Yes	
one day in a week	76 (25.4%)	44 (57.9%)	32 (42.1%)	
one day in a month	13 (4.3%)	9 (69.2%)	4 (30.8%)	
Are you suffering from any health problem?				
No	246 (82.3%)	181 (73.6%)	65 (26.4%)	<0.001
Yes	53 (17.7%)	18 (34.0%)	35 (66.0%)	
Total	299 (100.0%)	199 (66.6%)	100 (33.4%)	

Table 1 shows masturbation was significantly higher among male students (42.20%) compared with females (12.50%) ($p < 0.001$). Table 2 indicates socio-behavioral characteristics of the students. Majority (80.60%) of the respondents often organized gatherings with their friends. Late-night socializing with friends was reported by 29.80% students, almost half of the students (49.20%) often argued/fought with friends, around 80.00% students attended their lectures regularly, more than 70.00% students hang out with their friends and over 35.00% students did not go to bed on time. Students were found to masturbate at a significantly higher rate when they socialized with friends late at night (41.60%, $p = 0.049$), argued/fought with friends (42.20%, $p = 0.002$), hung out with friends (38.00%), $p = 0.005$ and did not go to bed on time (47.70%, $p < 0.001$). Approximately 33.6% male students reported watching pornography at least once a week whereas while 2.3% of female students consumed pornography at least one hour every day.

Table 2: Association between behavioral characteristics and masturbation

Variables	Number (Percent)	Masturbate		P values (χ^2 test)
		No	Yes	
Socializing with friends				
No	58 (19.4%)	44 (75.9%)	14 (24.1%)	0.094
Yes	241 (80.6%)	155 (64.3%)	86 (35.7%)	
Late-night socializing with friends				
No	210 (70.2%)	147 (70.0%)	63 (30.0%)	0.052
Yes	89 (29.8%)	52 (58.4%)	37 (41.6%)	
Argue/fight with friends				
No	152 (50.8%)	114 (75.0%)	38 (25.0%)	0.002
Yes	147 (49.2%)	85 (57.8%)	62 (42.2%)	
Regular university attendance				
No	87 (29.1%)	57 (65.5%)	30 (34.5%)	0.807
Yes	212 (70.9%)	142 (67.0%)	70 (33.0%)	
Punctuality to university				
No	60 (20.1%)	39 (65.0%)	21 (35.0%)	0.775
Yes	239 (79.9%)	160 (66.9%)	79 (33.1%)	
Focused on studies				
No	59 (19.7%)	35 (59.3%)	24 (40.7%)	0.189
Yes	240 (80.3%)	164 (68.3%)	76 (31.7%)	
Fight with friends due to affair/relationship				
No	249 (83.3%)	169 (67.9%)	80 (32.1%)	0.282
Yes	50 (16.7%)	30 (60.0%)	20 (40.0%)	
Fooling around with friends				
No	78 (26.1%)	62 (79.5%)	16 (20.5%)	0.005
Yes	221 (73.9%)	137 (62.0%)	84 (38.0%)	
Go to bed on time				
No	111 (37.1%)	58 (52.3%)	53 (47.7%)	<0.001
Yes	188 (62.9%)	141 (75.0%)	47 (25.0%)	
Consume three meals a day				
No	88 (29.4%)	54 (61.4%)	34 (38.6%)	0.219
Yes	211 (70.6%)	145 (68.7%)	66 (31.3%)	
Participate in social programs				
No	34 (11.4%)	24 (70.6%)	10 (29.4%)	0.596
Yes	265 (88.6%)	175 (66.0%)	90 (34.0%)	
Total	299 (100.0%)	199 (66.6%)	100 (33.4%)	

Table 3 summarizes the link between the use of online pornography and masturbation. Around 87.00% of students who watched online pornography masturbated regularly ($p < 0.001$). According to an adjusted model, students who watched pornography daily were 293 times (OR: 292.87, CI=43.10-1990.00) more likely to masturbate and similarly, those who watched pornography at least once a week or once a month were more likely to masturbate, with OR 161.43 (OR: 161.43, CI=38.64-674.39) and 112.3 (OR: 112.30, CI=22.80-553.22), than those who did not. It is, of course, not possible to determine the direction of the association, namely did students who masturbate more frequently seek out pornography more frequently or did students who sought out pornography more frequently masturbate more often.

Table 3: Association between pornography and masturbation

Watching pornography	Masturbation	P values	Do you masturbate?			
			Unadjusted OR	P values	Adjusted OR	P values
No	7(4.0%)	<0.001	1.00		1.00	
Everyday	19 (86.4%)		151.10 (36.04-633.49)	<0.001	292.87 (43.10-1990.0)	<0.001
At least once a week	56 (71.8%)		60.73 (24.62-149.78)	<0.001	161.43 (38.64-674.39)	<0.001
At least once a month	18 (72.0%)		61.35 (19.33-194.71)	<0.001	112.30 (22.80-553.22)	<0.001
Total	100 (33.4%)					

Table 4 and Table 5 have separately highlighted the relationship between reporting of masturbation and socio-behavioral characteristics of the genders. It was found consumption of pornography among male students had a significant association with arguing with friends, hanging around with friends and going to bed on time whereas no association was found between the behavioral factors and pornography addiction among female students.

Table 4: Association between behavioral characteristics and masturbation (male only)

Variables	Number (Percent)	Masturbate		P values (χ^2 test)
		No	Yes	
Socializing with friends				
No	31 (14.7%)	21 (67.7%)	10 (32.3%)	0.226
Yes	180 (85.3%)	101 (56.1)	79 (43.9%)	
Late-night socializing with friends				
No	137 (64.9%)	85 (62.0%)	52 (38.0%)	0.091
Yes	74 (35.1%)	37 (50.0%)	37 (50.0%)	
Argue/fight with friends				
No	96 (45.5%)	65 (67.7%)	31 (32.3%)	0.008
Yes	115 (54.5%)	57 (49.6%)	58 (50.4%)	
Regular university attendance				
No	71 (33.6%)	43 (60.6%)	28 (39.4%)	0.566
Yes	140 (66.4%)	79 (56.4%)	61 (43.6%)	
Punctuality to university				
No	51 (24.2%)	31 (60.8%)	20 (39.2%)	0.623
Yes	160 (75.8%)	91 (56.9%)	69 (43.1%)	
Focused on studies				
No	54 (25.6%)	30 (55.6%)	24 (44.4%)	0.696
Yes	157 (74.4%)	92 (58.6%)	65 (41.4%)	
Fight with friends due to affair/relationship				
No	174 (82.5%)	102 (58.6%)	72 (41.4%)	0.610
Yes	37 (17.5%)	20 (54.1%)	17 (45.9%)	
Hang around with friends				
No	39 (18.5%)	28 (71.8%)	11 (28.2%)	0.050
Yes	172 (81.5%)	94 (54.7%)	78 (45.3%)	
Go to bed on time				
No	90 (42.7%)	40 (44.4%)	50 (55.6%)	0.001
Yes	121 (57.3%)	82 (67.8%)	39 (32.2%)	

Variables	Number (Percent)	Masturbate		P values (χ^2 test)
		No	Yes	
Consume three meals a day				
No	61 (28.9%)	30 (49.2%)	31 (50.8%)	0.105
Yes	150 (71.1%)	92 (61.3%)	58 (38.7%)	
Participate in social programs				
No	28 (13.3%)	19 (67.9%)	9 (32.1%)	0.248
Yes	183 (86.7%)	103 (56.3%)	80 (43.7%)	
Total	211 (100.0%)	122 (57.8%)	89 (42.2%)	

Table 5: Association between behavioral characteristics and masturbation (female only)

Variables	Number (Percent)	Masturbate		P values (χ^2 test)
		No	Yes	
Socializing with friends				
No	27 (30.7%)	23 (85.2%)	4 (14.8%)	0.662
Yes	61 (69.3%)	54 (88.5%)	7 (11.5%)	
Late-night socializing with friends				
No	73 (83.0%)	62 (84.9%)	11 (15.1%)	0.108
Yes	15 (17.0%)	15 (100.0%)	0 (0.0%)	
Argue/fight with friends				
No	56 (63.6%)	49 (87.5%)	7 (12.5%)	1.000
Yes	32 (36.4%)	28 (87.5%)	4 (12.5%)	
Regular university attendance				
No	16 (18.2%)	14 (87.5%)	2 (12.5%)	1.000
Yes	72 (81.8%)	63 (87.5%)	9 (12.5%)	
Punctuality to university				
No	9 (10.2%)	8 (88.9%)	1 (11.1%)	0.894
Yes	79 (89.8%)	69 (87.3%)	10 (12.7%)	
Focused on studies				
No	5 (5.7%)	5 (100.0%)	0 (0.0%)	0.384
Yes	83 (94.3%)	72 (86.7%)	11 (13.3%)	
Fight with friends due to affair/relationship				
No	75 (85.2%)	67 (89.3%)	8 (10.7%)	0.212
Yes	13 (14.8%)	10 (76.9%)	3 (23.1%)	
Fooling around with friends				
No	39 (44.3%)	34 (87.2%)	5 (12.8%)	0.935
Yes	49 (55.7%)	43 (87.8%)	6 (12.2%)	
Going to bed on time				
No	21 (23.9%)	18 (44.4%)	3 (14.3%)	0.777
Yes	67 (76.1%)	59 (88.1%)	8 (11.9%)	
Consume three meals a day				
No	27 (30.7%)	24 (88.9%)	3 (11.1%)	0.793
Yes	61 (69.3%)	53 (86.9%)	8 (13.1%)	
Participate in social programs				
No	6 (6.8%)	5 (83.3%)	1 (16.7%)	0.749
Yes	82 (93.2%)	72 (87.8%)	10 (12.2%)	
Total	88 (100.0%)	77 (85.5%)	11 (12.5%)	

Discussion

The purpose of the study was to understand the prevalence and practice of masturbation by showing the relationship between masturbation and social behaviors, including the use of online pornography, in a Muslim-majority country like Bangladesh. This study found significant associations between masturbation and selected indicators, including sex (male and female), health problems, late-night socializing with friends, arguments/fights with friends, hanging out with friends and going to bed late. The study suggests watching pornography is likely led to masturbation. Results of the study were both consistent with and different from other studies, as discussed below.

Results of the present study found masturbation was more prevalent among males, and this is consistent with other published findings on this topic. A study that focused on university students in Hong Kong found a high prevalence of masturbatory practice among male students (70.60%), overseas students (64.29%), students from mainland China (30.43%), students with religious beliefs (43.00%), and those with no religious beliefs (33.00%) (Yan, 2006). The current study examined masturbatory practices among male and female Bangladeshi students. The finding did not show any association between religious beliefs and masturbation. The data obtained were self-reported rather than based on statistical prevalence of masturbation among university students in Bangladesh.

A study of undergraduate students in the US found negative attitudes towards masturbation (Ray & Afflerbach, 2014). Another study found social norms, perceived pleasure, and sexual activity were important mediators of masturbation experience and frequency among college students in the US. (Pinkerton et al., 2003).

Positive, negative and even individual therapeutic aspects have been associated with masturbation. For instance, in the present study, most of the students who suffered from some health problems, for example eye problems, blood pressure, weakness (physical strength), and sleeplessness, also practiced masturbation (although, the association is indeterminate).

Masturbatory practice was found to be higher among students who argued with their friends than those who did not in the present study. Alsughier (2015) suggested masturbation is an underlying cause of psychological problems, though arguably, the association may be the result of masturbation being an outlet for dealing with stressful life events (Fahs & Frank, 2014). However, compulsive masturbation on a daily basis may create a dependency on it (Alsughier, 2015). It may also lead to mental disorders due to cultural and religious guilt (Gerressu et al., 2007; Davidson & Moore, 1994; Balhara & Deb, 2013), although this association is unexplained and may be a statistical coincidence. Carvalheira, Træen and Stulhofer (2015) reported that persons who suffer from higher levels of sexual boredom masturbated at least several times weekly. Masturbation has been suggested as helpful in attaining sexual arousal (Carvalheira et al., 2015); the authors reported around 4.00% of patients attending a medical university in Poland, resorted to masturbation or sex to tackle sleeping abnormalities (Sobieraj et al., 2013).

Masturbation has also been found to have social implications. The current study found frequency of masturbation is higher among those who indulged in late night socialization. One possible explanation is these participants found sexual amusement from each other and from accessing online pornography. Future research should analyze this association in a more in-depth manner. Additionally, future study may also focus on the prevalence of masturbation among students who reported hanging out with their friends.

There was a high correlation between masturbation and access to online pornography. In 2012, the Anti-Pornography Act 2012 was introduced in Bangladesh which was aimed at preventing the younger generation from moral degradation. This Act prohibits child pornography, including still pictures, video or film with or without their consent as well as printing, distributing and publishing of such materials or selling, supplying or exhibiting child pornography (Saha et al., 2015). A study conducted among students at Dhaka University relating to the 2012 Anti-Pornography Act revealed that one-fourth of the respondents obtained pornographic materials from their friends (Saha et al., 2015). Students watch illegal pornographic materials on the internet to meet their sexual fantasy and craving (Wéry & Billieux, 2016). Harper and Hodgins (2016) reported a high correlation between Internet pornography addiction with poor psychosocial behaviors (higher general anxiety, stress, lower life satisfaction and use of problematic alcohol, cannabis, gambling and video games)

among undergraduate university students in Canada. Interestingly, pornography was also seen as an easily accessible source of sex education about sexual practices like masturbation (Chi et al., 2012).

This study found masturbation is not confined to males. Both sexes masturbate in varying frequency despite regular negative messages and religious injunctions against this sexual practice. Although the study did not investigate specific cultural and religious messages regarding masturbation, it lays the foundation for future research on this topic, by suggesting that sexuality may be a more powerful driver than religious instruction. The main strength of this study is its variety of indicators, namely personal (sex, health problems etc.) socio-economic (monthly household income, types of family, place of residence etc.) and socio-demographic (late-night socializing with friends, arguing or fighting with friends, hanging out with friends, going to bed on time and watching pornography among others) that contribute to a new understanding on the practice of masturbation and associated behaviors. Due to this being the first study of its kind in Bangladesh, the study's contribution to knowledge, as well as its potential to challenge the stigma and taboo surrounding masturbation, is significant.

This study is not free from its limitations. Self-response information using a structured questionnaire was the technique used for collecting data from respondents. Thus, the reliability of data can be questioned due to its sensitive nature. Social desirability bias, the need to appear to conform to dominant cultural and religious norms and standards, could certainly have had an impact on participants' responses. Prior to the survey, the respondents were briefed on the objective of the study and the itemized questionnaire so that they would have a proper understanding of the subject matter. The quantitative nature of this study meant it lacked in-depth insights. Therefore, a qualitative approach adopted by future study on this topic is vital to understand the relationship between masturbation and some of the covariates where the direction of association is not clear. Although every effort was made to generalize the findings of this study, a sample from one university does not represent the scenario of all universities or all young adults in Bangladesh. Therefore, generalizability of findings is limited. It is recommended a population-based study including non-university students would allow for greater representativeness.

Conclusion and Recommendation

Masturbation is both a physiological and psychological phenomenon that is associated with behaviors of university students in Bangladesh included in the study sample. Although the practice of masturbation is condemned both from the cultural and the social angles, results of this study revealed high prevalence of masturbation among young adults. The study also indicated a correlation between masturbation and health problems, late-night socializing with friends, arguing with friends, hanging out with friends, and staying up late. Hence, there is clear association between masturbation and access to pornography. Sex educators could consider these findings as a source of important information to develop materials which normalize sexual experiences, and in this case, masturbation among young people. The study also sheds light on this previously unexplored topic. Further research is needed in addressing limitations of this study and to add to knowledge on this under-researched topic. It is hoped this practice seen as taboo in Bangladeshi culture is eventually accepted as a normal biological phenomenon.

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References

- Al Mamun, M.A., Arafat, S.Y., Ambiatunnahar, M. & Griffiths, M.D. (2018). Attitudes and risk factors of pornography consumption among Bangladeshi University students: An exploratory study. *International Journal of Mental Health and Addiction*, 17(2), 323-335.
- Alsughier, N. (2015). Compulsive masturbation treated with selective serotonin reuptake inhibitors. *Journal of Psychiatry*, 18(4), 1-2. doi: 10.4172/psychiatry.1000299.
- Balhara, Y.P., & Deb, K. (2013). Dhat syndrome: a review of the world literature. *Indian Journal of Psychological Medicine*, 35(4), 326-331. doi: 10.4103/0253-7176.122219.
- Bancroft, J. (2004). Alfred c. Kinsey and the politics of sex research. *Annual Review of Sex Research*, 15(1): 1-39. doi: 10.1080/10532528.2004.10559818
- Bangladesh Bureau of Educational Information and Statistics (2016). *Bangladesh Education Statistics*. Retrieved from www.banbeis.gov.bd
- Bosch, A.M. (2005). *Adolescents' reproductive health in rural Bangladesh: the impact of early childhood nutritional anthropometry*. Amsterdam: Dutch University Press.
- Carvalho, A., Træen, B., & Stulhofer, A. (2015). Masturbation and pornography use among coupled heterosexual men with decreased sexual desire: how many roles of masturbation? *Journal of Sex & Marital Therapy*, 41(6), 625-635. doi: doi.org/10.1080/0092623X.2014.958790
- Catechism of the Catholic Church (n.d.). *The Sixth Commandment*. Retrieved from, http://www.vatican.va/archive/ccc_css/archive/catechism/p3s2c2a6.htm
- Chelsen, P.O. (2011). An examination of internet pornography usage among male students at evangelical Christian colleges. *Loyola University Chicago*. Retrieved from http://ecommons.luc.edu/cgi/viewcontent.cgi?article=1149&context=luc_diss_
- Chi, X., Yu, L., & Winter, S. (2012). Prevalence and correlates of sexual behaviors among university students: A study in Hefei, China. *BMC Public Health*, 12(912), 1-10. doi: 10.1186/1471-2458-12-972.
- Chowdhury, M.R.H.K., Chowdhury, M.R.K., Kabir, R., Perera, N.K.P., & Kader, M. (2018). Does the addiction in online pornography affect the behavioral pattern of undergrad private university students in Bangladesh? *International Journal of Health Sciences*, 12(3), 67-74.
- Coon, D., & Mitterer, J.O. (2009). *Psychology: Modules for active learning*. 11th edition. Belmont, USA: Thomson Wadsworth.
- Darkmoon, D.L. (2012). Pornography's effect on the brain, part 2 of 2. *The Occidental Observer*. Retrieved from <http://www.theoccidentalobserver.net/2012/09/30/pornographys-effect-on-the-brain-part-2/>
- Das, A.K. & Roy, S. (2015). Unheard narratives of sexual and reproductive health rights (SRHR) of adolescent girls of the Holy Cross College, Dhaka, Bangladesh. *IOSR Journal of Humanities and Social Science*, 21(2), 1-8.
- Davidson, J.K., & Moore, N.B. (1994). Masturbation and premarital sexual intercourse among college women: Making choices for sexual fulfillment. *Journal of Sex & Marital Therapy*, 20(3), 189-199. doi: 10.1080/00926239408403429
- Ephraim, O.C., Chinweike, O.J., & Michael, E. (2011). New prof omeje pornography addiction as correlate of psychosocial and academic adjustment of students in universities in Lagos state. *US-China Education Review B11* (2012): 907-920. Retrieved from <https://files.eric.ed.gov/fulltext/ED538840.pdf>
- Evans-Grimm, G. (2011). *Talking masturbation: Men, women, and sexuality through playful discourse*. Retrieved from <http://digitalcommons.iwu.edu/>

- Fahs, B., & Frank, E. (2014). Notes for the back room: gender, power and (in) visibility in women's experiences of masturbation. *The Journal of Sex Research*, 51(3), 241-252.
- Gagnon, R.A.J. (2005). A critique of Jacob Milgrom's views on Leviticus 18:22 and 20:13. *Pittsburgh Theological Seminary*. Retrieved from <http://www.robgagnon.net/articles/homoMilgrom.pdf>
- Gerressu, M., Mercer, C.H., Graham, C.A., Wellings, K., & Johnson, A.M. (2007). Prevalence of masturbation and associated factors in a British national probability survey. *Archives of Sexual Behavior*, 37(2), 266-278. doi: 10.1007/s10508-006-9123-6
- Ghisa, S.S. (2010). Masturbation in Islam. *The Revival*. Retrieved November 25, 2017, from <http://www.therevival.co.uk/article/masturbation-islam>
- Groenendijk, L.F. (1997). Masturbation and neurasthenia: Freud and Stekel in debate on the harmful effects of autoerotism. *Journal of Psychology & Human Sexuality*, 9(1), 71-94. doi: 10.1300/J056v09n01_05
- Harper, C., & Hodgins, D.C. (2016). Examining correlates of problematic internet pornography use among university students. *Journal of Behavioral Addictions*, 5(2), 179-91. doi: 10.1556/2006.5.2016.022
- Harvey, J.F. (1993). The pastoral problem of masturbation. *The Linacre Quarterly*, 60(2), 25-50. doi: 10.1080/20508549.1993.11878200
- Herbenick, D., Reece, M., Schick, V., Sanders, S.A., Dodge, B., & Fortenberry, J.D. (2010). Sexual behavior in the United States: Results from a national probability sample of men and women ages 14-94. *The Journal of Sexual Medicine*, 7, 255-265. doi: 10.1111/j.1743-6109.2010.02012.x
- Higgins, W. (2018). Buddhist sexual ethics. *BuddhaNet Magazine*. Retrieved November 25, 2017 from http://www.buddhanet.net/winton_s.htm
- Hodges, F.M. (2005). History of sexual medicine: The anti-masturbation crusade in Antebellum American medicine. *The Journal of Sexual Medicine*, 2(5), 722-731. doi: 10.1111/j.1743-6109.2005.00133.x
- Iqbal, M.W., & Mian, N.A. (2014). Analysis of internet addiction amongst university level students. *VFAST Transactions on Software Engineering*, 3(2), 11-16. Retrieved from <https://www.vfast.org/journals/index.php/VTSE/article/viewFile/116/179>
- Kabbash, I.A., Ali, E.A.A., Kabbash, M.I., & El-Naga, A.A. (2017). Perception and practices of masturbation by male medical students, Tanta University, Egypt. *Egyptian Journal of Community Medicine*, 35(1), 99-109. DOI: 10.21608/EJCM.2017.2814
- Kasemy, Z., Desouky, D.E.S., & Abdelrasoul, G. (2016). Sexual fantasy, masturbation and pornography among Egyptians. *Sexuality & Culture*, 20(3), 626-638. doi: 10.1007/s12119-016-9346-1
- Klein, V., Rettenberger, M., & Briken, P. (2014). Self-reported indicators of hypersexuality and its correlates in a female online sample. *The Journal of Sexual Medicine*, 11(8), 1974-81. doi: 10.1111/jsm.12602.
- Knowles, J. (2002). Masturbation — from stigma to sexual health. *White Paper*.
- Levin, R.J. (2007). Sexual activity, health and well-being – the beneficial roles of coitus and masturbation. *Sexual and Relationship Therapy*, 22(1), 135-138. doi: 10.1080/14681990601149197
- Lipsith, J., McCann, D., & Goldmeier, D. (2003). Male psychogenic sexual dysfunction: The role of masturbation. *Sexual and Relationship Therapy*, 18(4), 447-471. doi: doi.org/10.1080/1468199031000099442
- Malone, B.J. (1974). A guide to formation in priestly celibacy. *Vatican Congregation for Catholic Education*, 4(5), 67-77. Retrieved November 25, 2017, from <http://www.usccb.org/beliefs-and-teachings/vocations/priesthood/priestly-formation/upload/celibacy.pdf>
- Matusiak, J. (2018). Church's view of masturbation. *Orthodox Church in America*. Retrieved November 25, 2017, from <https://oca.org/questions/dailylife/churchs-view-of-masturbation>
- McCaghy, C.H., Capron T.A., Jamieson J.D. & Carey, S.H.H. (2016). *Deviant behavior: crime, conflict, and interest groups (8th ed.)*. Boston: Pearson.
- Moni, M. (2013). My work archives. Retrieved from <https://mahmudmoni.com/archives/category/my-work>
- Muraleedharan, A. (2014). Is masturbation a sin? *Speakingtree.in*. Retrieved from <https://www.speakingtree.in/allslides/is-masturbation-a-sin>

- Oliver, M.B., & Hyde, J.S. (1993). Gender differences in sexuality: results from meta-analysis. *Psychological Bulletin*, 114(1), 29-51. Retrieved November 25, 2017, from <http://psycnet.apa.org/doi/10.1037/0033-2909.114.1.29>
- Patton, M.S. (1985). Masturbation from Judaism to Victorianism. *Journal of Religion and Health*, 24(2), 133-146. doi: 10.1007/BF01532257.
- Pinkerton, S.D., Bogart, L.M., Cecil, H., & Abramson, P.R. (2003). Factors associated with masturbation in a collegiate sample. *Journal of Psychology & Human Sexuality*, 14(2-3), 103-121. doi: 10.1300/j056v14n02_07
- Porto, R. (2016). Male masturbation habits and sexual dysfunctions. *Sexologies*, 25(4), 160-165. doi: <http://doi.org/10.1016/j.sexol.2016.03.004>
- Ray, J., & Afflerbach, S. (2014). Sexual education and attitudes toward masturbation. *Journal of Undergraduate Research at Minnesota State University, Mankato*, 14(1): 1-17. Retrieved from: <http://cornerstone.lib.mnsu.edu/jur/vol14/iss1/8>
- Robbins, C.L. (2011). Prevalence, frequency, and associations of masturbation with partnered sexual behaviors among US adolescents. *Archives of Pediatrics & Adolescent Medicine*, 165(12), 1087-1093. doi: <http://doi:10.1001/archpediatrics.2011.142>
- Roknuzzaman, M. (2006). A survey of internet access in a large public university in Bangladesh. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 2(3), 86-105.
- Saha, A.K., Hussain, R., Rabbani, G., Pervin, I., Shamma, W.T., & Khan, S.H. (2015). Anti-pornography act (2012) and the current behavior, knowledge status and opinion poll: a study on the students of University of Dhaka. *Journal of Law, Policy and Globalization*, 36(2015), 73-77. <http://www.iiste.org/Journals/index.php/JLPG/article/view/21714>
- Shekarey, A., Rostami, M.S., Mazdai, K., & Mohammadi, A. (2011). Masturbation: prevention& treatment. *Procedia - Social and Behavioral Sciences*, 30(2011), 1641-1646. doi: 10.1016/j.sbspro.2011.10.318
- Smith, A.M., Rosenthal, D.A., & Reichler, H. (1996). High schoolers masturbatory practices: their relationship to sexual intercourse and personal characteristics. *Psychological Reports*, 79(2), 499-509. doi: <http://doi:10.2466/pr0.1996.79.2.499>
- Sobieraj, A., Fabian, K., Wilczyński, K., & Krysta, K. (2013). Occurrence of sleep abnormalities among people with mental disorders – questionnaire study. *Psychiatr Danub*, 25(2), 203-206.
- Sunnah. (n.d.). Book of Wedlock, *Marriage (Nikaah)*; Hadith 4. Retrieved from <https://sunnah.com/bukhari/67>.
- Thomson Nelson. (2015). *A Christian guide to Ontario's health and physical education curriculum*. Canada: Thomson Nelson. Retrieved November 25, 2017, from http://www.orthodoxphysicalhealth.com/uploads/6/1/6/5/61652961/grade_5.pdf
- The Daily Star. (2016). *Per capita income rises to \$1466*. Retrieved from <https://www.thedailystar.net/frontpage/capita-income-rises-1466-1204930>
- Wéry, A., & Billieux, J. (2016). Online sexual activities: an exploratory study of problematic and non-problematic usage patterns in a sample of men. *Computers in Human Behavior*, 35, 257-266. doi: 10.1016/j.chb.2015.11.046
- Wysaski, J. (2011). Infographic: masturbation facts and statistics. *Pleated Jeans*. Retrieved November 25, 2017, from <http://pleated-jeans.com/2011/04/18/infographic-masturbation-facts-and-statistics>.
- Yan, Y.Y. (2006). Sexual responses and behaviors of university students in Hong Kong. *International Journal of Adolescence and Youth*, 13(1-2), 43-54. doi: 10.1080/02673843.2006.9747965