

Research article

Perception of nutritional status and personal hygiene practices of female garment workers in Bangladesh

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ABSTRACT

The garment industry is one of the main export-based economic sectors in Bangladesh. Female workers are a crucial part of this sector and have had a pivotal role in increasing the country's revenue in recent decades. The prime aim of this study was to observe the nutritional status and personal hygiene practices of female garment workers (FGW) in the Chattogram metropolitan area, Bangladesh. A cross-sectional study had conducted for collecting data from randomly selected garment workers (382) in Chattogram, Bangladesh. Then data analysis (univariate and bivariate) was performed using STATA 13.0 software. This study revealed that 46.34% of the participant's weight was in the normal range based on body mass index (BMI), 3.14% were underweight, 38.74% were pre-obese, and 11.78% were obese. Most of the respondents (56.54%) had normal hemoglobin levels, and three-fourths of their blood pressure was normal. Furthermore, we found a significant association of safe water drinking with the level of education, mother's occupation, marital status, and family income ($p < 0.05$). In addition, the use of menstrual pads during menstruation was also significant with types of families ($p < 0.05$). In conclusion, the awareness of hygiene practices among women and government policy needs strengthening to reduce the risks of unhygienic practices.

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1. INTRODUCTION

In the context of Bangladesh, the garments industry is now the main economic sector. This labor-intensive sector has developed rapidly here through its ordinary technology, low-cost labor, and small area. A large number of young workers, about 4 million, worked in the export-based garment industries in Bangladesh. About 66% of the total exports of Bangladesh are

garments oriented. About 35 varieties of garments products of Bangladesh are exported to 31 countries throughout the world. This sector tops the list of manufacturers of garments worldwide and ranks second after China (Ahmed, 2008).

Due to the explosive growth of the garments industry in Bangladesh, the number of working women is increasing every day. This sector has

given employment to a big part of women folk, which in turn has helped in the socio-economic development of the country. The high rate of ignorance and low level of education of these female workers almost predetermined their placement in low-paid unskilled jobs. The majority of these women workers needed to enter wage employment to liberate their families from starvation. These women usually work 14 to 16 hours a day in poor, congested, and poorly ventilated environments. In 1985 garments factories were 384 but now there are more than 5400 garments factories (BGMEA, 2013). Two groups of women are particularly inclined to do these jobs: women in families headed by men and low-income household workers in Bangladesh who tend to have very little education or are illiterate as they leave school early to help support their families. The female health situation is far below the conditions of the total population because a woman has to endure the worst part of poverty more than her male counterpart.

Malnutrition is very common among women in our country. Participation of women in the labor market is becoming a necessity for a better lifestyle. Currently, 41% of the total workforce in the country is female (Riaduzzaman, 2017). During this period, it received numerous migrants from rural regions in the garments production sector. Malnutrition among women of reproductive age along with deficiencies in reduced weight, anemia, and micronutrients, is associated with numerous negative health outcomes, such as cognitive problems, reduced working capacity, and immunodeficiency responses leading to reduced resistance to infections (WHO, 2001).

In Bangladesh, numerous studies have been conducted in different major cities on the nutritional status and personal hygiene practices among garments workers. Chowdhury and Ullah (2010) evaluated a survey of 151 workers from 29 industrial garments units located in different parts of the Chittagong metropolitan area. Haque et al. (2017) studied the nutritional status, personal hygiene, and health research behavior of workers at the British American Tobacco Company, Dhaka, Bangladesh. Akter et al. (2017) evaluated a survey on the cross-sectional study among the 100 teenage workers selected

from different sectors located in Dhaka and Tangail, Bangladesh, to assess their nutritional status and food consumption model. A survey on the physical conditions, nutrient intake, and dietary patterns of working women in urban areas of Bangladesh was conducted by Khan and Ahmed (2005). But research work considering the nutritional status and personal hygiene practices of female garments workers at the Chattogram metropolitan area in Bangladesh is limited in number. Therefore, the objective of this study is to identify the nutritional status and practices of personal hygiene of female garment workers to provide nutritional knowledge to improve their present health conditions.

2. MATERIALS AND METHODS

Study area and period

A cross-sectional study was carried out from July 2019 to December 2019 at Chattagram. The samples were drawn from different garment factories situated in different locations of Chattogram metropolitan area using a convenient sampling technique.

Sample size

The sample size was estimated by using web based Automated Raosoft sample size calculator. In this calculator, the margin of error acceptance was set to 5% and the confidence level had been set at 95% (Raosoft, 2011). The sample size was selected randomly from different garments factories.

Data collection instrument

A self-constructed questionnaire was administered to gather primary data considering the objectives of the study. The questionnaire consisted of mostly close-ended and a few open ended questions, which was distributed among the female garment workers. The respondents were personally questioned and the questionnaires were filled in by the interviewer based on the response of the respondents.

Anthropometric and biochemical measurements

The weight and height of participants were measured to calculate the body mass index (BMI) by following the formula.

$$\text{BMI} = \frac{\text{Body weight in Kg}}{(\text{Height in meter})^2}$$

The hemoglobin level and blood pressures were measured capillary (by using GCHB-Bioptik Technology, Inc., Taiwan) and auscultatory method (by using Sphygmomanometer) respectively

Personal hygiene assessment

Personal hygiene assessment of the female garment workers was done by menstruation hygiene practices such as the use of sanitary pads and the frequency of changing pads. Other information such as washing hands with soap before eating, washing hands after visiting the toilet, using footwear during visiting the toilet, etc. was also considered.

Statistical analysis

A cross-sectional study was carried out in different garment factories to know the prevalence of nutritional status and personal hygiene of female garment workers. The data were compiled from the questionnaire and fed into Microsoft Excel, 2010. Then data were exported into STATA 13.0 software for frequency and percentages of different variables. The associations of nutritional status and personal hygiene with different variables were done by using one-way ANOVA and Chi-square test. The level of significance was set at $p < 0.05$.

3. RESULTS

Demographic characteristics of the female garment's worker

This study indicates that the female garment workers were young, married, less educated, of rural origin, and belonged to very poor families that are represented in Table 1. According to this observation, the age of the female garment workers was between 15 and 45 years but most of them were 26-35 years old. As for education, 72.77% had received primary level education and only a few workers (9.16%) had completed higher secondary level education. Because of their poor economic condition, they were deprived of education. The fathers of 40.31% of the female garment workers were found to be

rickshaw pullers while the mothers of 88.48% of them were housewives.

About 50 percent of female workers were from nuclear families and the rest belonged to extended families. Most of the women workers (88%) were married and the rest of them were either unmarried, divorced, widowed, or abandoned by their husbands. The husbands of the married female garments worker were either a driver, garments workers, businessmen, emigrant workers, etc. The monthly family incomes of the workers varied between Tk.10,000 and Tk.30,000.

According to this observation, normal weight, underweight, pre-obese, and obese were 46.34%, 3.14%, 38.74%, 11.78 % respectively (Table 1). Among 382 respondents, normal, mild, and moderate hemoglobin levels of workers were 56.54 %, 42.41 %, 1.05% respectively. Most of the respondents (75.39%) had normal blood pressure levels. The workers with low blood pressure and high blood pressure were 17.28% and 7.33%, respectively.

Personal hygiene practices of the female garment's worker

The results of this study found that the percentage of drinking tube-well water among the respondents was 68.06 %, purified water was 89.53 %, using sanitary latrine in the garment workers was 97.64%, using footwear in the toilet was 99.21%, washing hand with soap after visiting toilet was 99.21%, washing hand with soap before eating was 97.21 %, using pad during menstruation was 64.14%. Although the garment workers had a low level of economic status, they followed good hygiene practices (Table 2).

Associated factors of demographic characteristics with personal hygiene

The level of education, mother's occupation, marital status, were statistically significant ($p < 0.05$) with sources of drinking water (Table 3), way of water purification (Table 4), and using pad during menstruation (Table 5). This result is corroborated by Haque (2017) where religion, level of education, mother's occupation, marital status, monthly expenditure for the family is responsible for hygiene

practice. Although several factors cause malnutrition in the female population of our country, personal hygiene related to socio-demographic characteristics is the main factor. Illiteracy is also one of the factors because it is not true that only expensive foods can provide better nutrition. The high prevalence of disease

adversely affects the working capacity of female workers which can be avoided by maintaining an adequate standard of personal hygiene. But it was found that almost half of the subjects were malnourished since they belonged to a low socio-economic class of society.

Table 1. Frequency distribution of demographic variables of female garments workers

Variables	Frequency N (%)	
Age	15-25	166 (43.46)
	26-35	176 (46.07)
	36-45	33 (8.64)
	Above 45	7 (1.83)
Level education	Primary	278 (72.77)
	Secondary	69 (18.06)
	Higher secondary	35 (9.16)
	Garments worker	47 (12.30)
Father's occupation	Rickshaw puller	154 (40.31)
	Labor	140 (36.65)
	Business	34 (8.90)
	Other	7 (1.83)
Mother's occupation	Housewife	338 (88.48)
	Garments worker	43 (11.26)
Types of family	Others	1 (0.26)
	Nuclear	192 (50.26)
Marital status	Joint	190 (49.74)
	Married	336 (87.96)
Husband's occupation	Unmarried	46 (12.04)
	Driver	102 (30.45)
	Garments worker	102 (30.45)
	Business	41 (12.24)
	Rickshaw puller	38 (11.34)
	Labor	30 (8.96)
Family income (Monthly)	Job	16 (4.78)
	Immigrant	6 (1.79)
	<10,000	44 (11.52)
	10,000-19,000	173 (45.29)
BMI (kg/m ²)	20,000-29,000	129 (33.77)
	>30000	36 (9.42)
	Underweight (<18.5)	12 (3.14)
	Normal weight (18.5-24.9)	177 (46.34)
	Preobese (25-29.9)	148 (38.74)
Hemoglobin (g/dl)	Obese (>30)	45 (11.78)
	Severe (<7.0)	0 (0.0)
	Moderate (7.0 to 9.0)	4 (1.05)
	Mild (9.0 to 12.0)	162 (42.41)
Blood pressure (mmHg)	Normal (12.0 to 16.0)	216 (56.54)
	Low blood pressure	66 (17.28)
	Normal blood pressure	288 (75.39)
	High blood pressure	28 (7.33)

Table 2. Frequency distribution of Personal hygiene practices of female garments workers

Variables		Frequency N (%)
Sources of drinking water	Tube well	260(68.06)
	WASA	119(31.15)
	River	1(0.26)
	Others	2(0.52)
Water purification before Consumption	Yes	342(89.53)
	No	40(10.47)
Types of latrines	Sanitary	373(97.64)
	Unsanitary	9(2.36)
Used footwear in toilet	Yes	379(99.21)
	No	3(0.79)
Washing hand with soap after visiting toilet	Yes	379(99.21)
	No	3(0.79)
Washing hand with soap before eating	Yes	374(97.21)
	No	38(2.09)
Used pad during menstruation	Yes	245(64.14)
	No	137(35.86)

Table 3. Association of sources of drinking water with demographic characteristics

Variables	Major sources (Tubewell) n (%)	Minor sources (Wasa, river, others) n (%)	p-value
Level of education			
Primary	217 (78.06)	61 (21.94)	<0.001
Secondary	27(39.13)	42 (60.87)	
Higher secondary	16(45.71)	19 (54.29)	
Father's Occupation			0.410
Garments worker	27(57.45)	20 (42.55)	
Rickshaw puller	111 (72.08)	43 (27.92)	
Labor	95(67.86)	45 (32.14)	
Business	23(67.65)	11 (32.35)	
Other	4 (57.14)	3 (42.86)	
Mother's Occupation			<0.005
Housewife	239 (70.71)	99 (29.29)	
Garments worker	21(48.84)	22 (51.16)	
Others	0(0.00)	1 (100.00)	
Husband's Occupation			0.075
Driver	76(74.51)	26 (25.49)	
Garments worker	75(73.53)	27 (26.47)	
Business	31(75.61)	10 (24.39)	
Rickshaw puller	28(73.68)	10 (26.32)	
Labor	17(56.67)	13 (43.33)	
Job	7 (43.75)	9 (56.25)	
Immigrant	3 (50.00)	3 (50.00)	
Marital status			<0.002
Married	238 (70.83)	98 (29.17)	
Unmarried	22 (47.83)	24 (52.17)	
Monthly family income (taka)			0.851
<10,000	29 (65.91)	15 (34.09)	
10, 000-19, 000	120 (69.36)	53 (30.64)	
20,000-29, 000	85 (65.89)	44 (34.11)	
>30000	26 (72.22)	10 (27.78)	

Table 4. Association of purifying method with demographic characteristics

Variables		Yes n (%)	No n (%)	p-value
Level of Education	Primary	263 (94.60)	15 (5.40)	<0.001
	Secondary	49 (71.01)	20 (28.99)	
	Higher secondary	30 (85.71)	5 (14.29)	
Father's Occupation	Garments worker	41 (87.23)	6 (12.77)	0.811
	Rickshaw puller	136 (88.31)	18 (11.69)	
	Labor	127 (90.71)	13 (9.29)	
	Business	32 (94.12)	2 (5.88)	
Mother's Occupation	Other	6 (85.71)	1 (14.29)	<0.002
	Housewife	307 (90.83)	31 (9.17)	
	Garments worker	35 (81.40)	8 (18.60)	
Marital status	Others	0(0.00)	1(100.00)	<0.001
	Married	307 (91.37)	29 (8.63)	
Husband's Occupation	Unmarried	35(76.09)	11(23.91)	0.135
	Driver	92(90.20)	10 (9.80)	
	Garments worker	91(89.22)	11(10.78)	
	Business	37(90.24)	4(9.76)	
	Rickshaw puller	37 (97.37)	1(2.63)	
	Labor	29(96.67)	1(3.33)	
	Job	16 (100.00)	0(0.00)	
Monthly family income (taka)	Immigrant	4 (66.67)	2 (33.33)	0.158
	<10,000	42(95.45)	2(4.55)	
	10, 000-19, 000	157 (90.75)	16 (9.25)	
	20,000-29, 000	114 (88.37)	15(11.63)	
	>30000	29(80.56)	7 (19.44)	

4. DISCUSSION

According to this observation, normal weight, underweight, preobese, and obese were 46.34%, 3.14%, 38.74%, 11.78 % respectively. The study revealed that one-fourth (26.7%) of the female garment workers were suffering from malnutrition and amongst the female (32.1%), the malnutrition was twice of the male (14.4%) workers (Khandker et al, 2016). Similar to this study, other studies of Bangladesh showed that in the case of the level of education, the average schooling of the workers is 6.84 years. This study also shows that, of the total workers surveyed 2.50 percent were illiterate, 35 percent of the workers had primary education, and 48 percent had secondary education, while only 2.50 percent had higher secondary education (Sikder et al., 2014). Among 382 respondents, normal, mild, and moderate hemoglobin levels of workers were 56.54 %, 42.41 %, 1.05 % respectively. Most of the respondents (75.39%) had normal blood pressure levels, 17.28% had low blood pressure, and 7.33% had high blood pressure. Another researcher found anemia to be

more than twice among the female workers (67.2%) in comparison to that of male workers (30.6%) and overall half of the studied workers were found to suffer from anemia (Khandker et al., 2016).

According to the World Health Organization (WHO), a low weight prevalence of 20% to 39% in a given population is considered a critical situation (WHO, 1995).

NGOs reported a similar prevalence of low weight (36%) among garment workers in Cambodia in 2013, according to a small cross-sectional survey (McMullen, 2016). In contrast, a recent study by the International Labor Organization (ILO) conducted in several Cambodian factories found a significantly lower prevalence of 14.3% of reduced weight among female workers, who were mainly married and whose age was, therefore, greater (ILO, 2016). Many young workers are likely to start working when they are already underweight, as demonstrated by teenage workers in Bangladesh (Khan and Ahmed, 2005).

Table 5. Association of used pad in menstruation with demographic characteristics

Variables	Yes n (%)	No n (%)	p-value
Age			
15-25	113 (68.07)	53(31.93)	0.565
26-35	102 (61.36)	68(38.64)	
36-45	20(60.61)	13(39.39)	
Above 45	4 (57.14)	3 (42.86)	
Level of Education			
Primary	178 (64.03)	100 (35.97)	0.568
Secondary	42 (60.87)	27 (39.13)	
Higher secondary	25(71.43)	10(28.57)	
Types of family			
Nuclear	113 (58.85)	79(41.15)	<0.030
Joint	132 (69.47)	58(30.53)	
Father's Occupation			
Garments worker	25(53.19)	22(46.81)	0.152
Rickshaw puller	98(63.64)	56(36.46)	
Labor	93(66.43)	12(35.29)	
Business	33 (64.71)	0(0.00)	
Other	7 (100.00)	0(0.00)	
Mother's Occupation			
Housewife	214 (63.31)	124 (36.69)	0.215
Garments worker	31(72.09)	12(27.91)	
Others	0(0.00)	1 (100.00)	
Marital status			
Married	216 (64.29)	120 (35.71)	0.869
Unmarried	29(63.04)	17(36.96)	
Husband's Occupation			
Driver	68 (66.67)	34 (33.33)	0.282
Garments worker	72 (70.59)	30 (29.41)	
Business	20 (48.78)	21 (51.22)	
Rickshaw puller	23 (60.53)	15 (39.47)	
Labor	18 (60.00)	12 (40.00)	
Job	11 (68.75)	5 (31.25)	
Immigrant	3 (50.00)	3 (50.00)	
Monthly family income (taka)			
<10,000	30 (68.78)	14 (31.82)	0.898
10, 000-19, 000	112 (64.74)	61 (35.26)	
20,000-29, 000	80 (62.02)	49 (37.98)	
>30000	23 (63.89)	13 (36.11)	
10, 000-19, 000	103 (64.38)	57 (35.63)	
>30000	1 (33.33)	2 (66.67)	

It is known that amenorrhea (absence of menstruation) is related to low weight (Mitan, 2004). In contrast, a cross-sectional study of 1530 Vietnamese women of reproductive age reported positive associations between BMI and Hb level (Lailou, 2014).

Hygiene practice among them was almost the same. The results of this study showed that

the percentage of drinking tube well water was 68.06 %, purified water was 89.53 %, using sanitary latrine in garment workers was 97.64%, using footwear in the toilet was 99.21%, washing hand with soap after visiting toilet was 99.21%, washing hand with soap before eating was 97.21 %, using sanitary pad during menstruation was 64.14%. Although the garment workers had a

lower level of economic status, they followed good hygiene practices. The level of education, mother's occupation, marital status, were statistically significant ($p < 0.05$) with sources of drinking water, way of water purification, and using pad during menstruation. Because of the low socio-economic class of society, almost half of the workers are malnourished.

5. CONCLUSION

The result of this study confirms the existence of a negative energy balance among garment workers with many problems, such as poor nutritional status, lack of knowledge of nutritional foods, and bad eating habits, resulting in a lack of BMI standards. Although the results show that the female garment workers have normal weight, they gain weight mainly by eating carbohydrates. They eat little proteins, fats, vitamins, and minerals. Since their hygiene practice is good, they should also know about nutritious foods to enrich their nutritional status and ensure sound health. Finally, it can be concluded that collaboration between female garment workers is needed to improve within limited resources. Essential policies already exist that support the achievement of better education and women's rights, but their implementation needs to be strengthened. Continuous promotion is needed to promote women's education

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