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Research article

CHALLENGES OF WOMEN IN POST-DISASTER HEALTH MANAGEMENT: A STUDY IN KHULNA DISTRICT

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Abstract: Health management in post-disaster phase needs more attention than any other phase because this includes mitigation and recovery which is challenging for people especially women. Women play an active traditional gender roles in family with a lot of responsibilities; in post-disaster period they faced more challenges in management of health. Quantitative methods were used to assess the challenges of women in post-disaster health management, this study was carried out on Dacope Upazila (North Kamarkhola village) of Khulna District. Following simple random sampling procedure by using interview schedule, 199 participants were selected from 412 population. Both descriptive as well as inferential statistics were applied in this study, statistical tests such as Pearson's chi-square, correlation and regression had been done to test the hypotheses. Findings show that socioeconomic position like employment status of women (p<0.024), types of houses (p<0.000), monthly income (p<0.001), monthly savings (p<0.001), monthly household income (p<0.000) and household savings (p<0.019) occupation (p<0.019) and head of the household had (p<0.058) a significant relationship with the challenges of women in post-disaster health management. Monthly income and physical health problem were also correlated with the challenges. In OLS regression test it was found that health (physical and mental) and family size had great positive impact on challenges of women. The study also found that, women of North Kamarkhola village were unable to get medical facilities and maintain proper menstrual hygiene immediately after disaster. Violence against women was also a little bit increased in post-disaster period which generated challenges.

Keywords: Post disaster, health, challenges, problems, women etc.

1. Introduction

Geographically Bangladesh is situated in an active disaster zone, the people of Bangladesh always face frequent attack of different kinds of natural disaster like flood, cyclone, tsunami, earthquake, heat wave, river erosion, excessive rainfall etc. Both male and female are affected by disaster, but the women, older people and children are more vulnerable for these natural phenomena. From some significant catastrophic events of the decade it have been seen that the women of the subcontinent don't have enough knowledge about management of disaster issues and women faced severe vulnerability than men (Gokhale, 2008). Statistical data show that in 2003 by European heat wave the rate of death of older women was higher than older men, the tsunami of 2004 also caused higher death rate of women than that of men (Rahman, 2013). In Bangladesh during the disaster of 1991 and 2007 the death rate of women was more than men (Rahman, 2013). From 1797 to 2009, approximately 65 different cyclone occurred in Bangladesh which caused 53 percent of all cyclone related death and around 80 or 90 percent loss globally (Paul, 2010). Women in family play a vital role in disaster management but the contribution of them is always neglected by our larger society; the contribution of women had been seen as valueless.

Disaster can be defined as sudden accident or a natural affliction that causes great damage of life or Property. From sociological view point, disaster can be defined as a severe and unexpected condition which disrupt social structure (Blaikie et al, 2005). In this study the concept of health management indicates the role or effort of women in managing health care issues which may include medical supplies, treatment and emergency preparedness. This mainly concern the sudden activity to manage health issue after disaster. Challenge mainly used for understanding the health issues of women which is difficult for them after disaster, like nutritional issues, safe drinking water, medical support, sanitation facilities, personal hygiene Issues, homelessness, violence etc.

The role of women in family is more likely caretaker of the children and older people, they properly didn't able to run with bearing children and long hair, extra cloth makes their life miserable during disaster emergency (Chew & Ramdas, 2005). Pregnant women during and after disaster faced more problems than other women, lack of safe place for delivery, sanitary issues and environment produced the chance of infection as well as mortality (Van den Akker, de Vroome, Mwagomba, Ford, & van Roosmalen, 2011). The mortality rate during and after disaster is higher in south Asian countries. Lack of access to information technology and as a lower income country, the people of Bangladesh are able to see the destructive image of disaster, especially women are less powerful and marginal than others in our society.

Severe health problems (both mental and physical) take place after disaster and affects women and children most. In Bangladesh the policy and program about disaster management are not equal for male and female (Climate Change Cell, 2009). During disaster period different kinds of sexual and reproductive hygiene problem spread out and it also increased the prevalence of sexual harassment and domestic violence (Rahman, 2013). Sexually transmitted diseases (STD) and PTSD come out in post disaster as a result of sexual and psychological violence which have a great effects on women wellbeing as well as their family (Xiong et al., 2008). Women reproductive health issues are significant during the period of disaster which caused mortality and morbidity which also may result in infertility, stillbirth, early pregnancy loss, disabilities and serious injury(Cordero, 1993). Diarrhea, cholera, fever, skin diseases and snake bites are most common problems among the people of Bangladesh which caused by disaster (Mondal, Rashid, Rahman, & Amin, 2018). Sanitation problem in post disaster period is a serious problem for women which also responsible for health problem of their own as well as the environment damages. Food insecurity is one of the most concerning

issues after disaster which partly depended on female member of the family, lack of nutritional requirement also interrupts breast feeding of the child. Post disaster period including migration and different kinds of water contaminated and other diseases also create mental illness (Cordero, 1993).

Factors like socioeconomic, demographic, stressful life events, loss of wealth and property had significant relationship with events in recovery phase, coping mechanism and support after disaster (Freedy & Simpson Jr, 2007). This model of risk factor helps to identify the factors affecting mental and physical health problem in post-disaster period, which also emphasizes the factors that women are more emotional than men so they experienced more mental health issues in post-disaster period which produced from post-disaster recovery stressful events. This model also explains, how much importance the socioeconomic condition has in case of health problem and management.

Women during flood and other disasters unable to maintain their menstrual hygienic, most of the time they have to wash their used cloth by dirty water and they are bound to use those cloths repeatedly (Rashid & Halder, 1998). The vulnerability and challenges of women from disaster are more severe in developing and poor countries like Bangladesh, where women are less powerful and don't have any control over their own livelihood; the position of women in decision making of family issues also restricted by our society and the position of poor women are worse than that. In developing countries, a lot of challenges for women come out when they become homeless and unable to go outside without vail or permission of male person; women are even unable to get primary treatment and sanitation facilities after disaster because of the superstation. Limited study had been conducted regarding these issues in this area, so this study was designed to access the various health problems faced by women as well as to investigate the challenges of women regarding management of health issues in post-disaster period in Dacope Upazila of Khulna District.

2. Materials and methods

Observing the quantitative research design, this study is explanatory in nature as well as the study was carried out on women respondents who were chosen purposively in Kamarkhola union under Dacope Upazila of Khulna District. Area of Kamarkhola Union consists of total 6839 women, among them 412 women lived in North Kamarkhola village which was purposively selected as the area of the study, because disasters would frequently attack and create vulnerable situation for women in this area. To achieve the study objectives, some specifications were made to identify the respondents, the data were collected from i) married or widow women who lived in Kamarkhola Union (North Kamarkhola village) of Dacope Upazila at least 3 years ii) belonged to the age group of 18 to 60 years. The interview schedule containing both open and closed questions in English as well as designed for data collection. According to the aforecited a criterion by census was conducted by the research, 199 women respondents were identified from study area selected through simple random sampling. A sample size of 199 was determined regarding a confidence level of 95 and confidence interval 5.

The formula for calculating sample size was:

$$SS = SS = \frac{z^2 x\, p(1-p)}{c^2} \qquad ss_i = \frac{ss}{1+\frac{ss-1}{pop}}$$

Here, SS = Sample size, SSi = sample size according to the population, Z = Z value (e.g., 1.96 for 95% confidence level), P = percentage picking a choice, expressed as decimal (*i.e.*,0.5 used for sample size needed), C= confidence interval (*e.g., 0.5 used for sample size needed*)

Formula 1: The first formula had been used to define the sample size

$$SS=\frac{(1.96)^2\times o.5\ (1-0.5)}{(0.0500)^2}$$
$$=\frac{3.842\times 0.5\times 0.5}{0.00250000}$$
$$=\frac{0.9604}{0.002500}$$
$$\mathbf{= 384.16}$$

Formula 2: The first formula had been used for correction for finite Population

$$SS_i=\frac{\text{ss}}{1+\frac{\text{ss}-1}{\text{pop}}}$$
$$=\frac{384.16}{1+\frac{384.16-1}{412}}=\frac{384.16}{1+\frac{384.16}{412}}$$
$$=\frac{384.16}{1+0.933}=\frac{384.16}{1.933}$$
$$= 198.7 = \mathbf{199}$$

Due to pandemic situation, the researcher had to compel collecting data in different times (1st March to 31th March, 2021 and 1st September- 5th September, 2021).

Table 1: Time Schedule of Field work

Field Work	Duration	Number of Women
Census	February 5th – 10th February, 2020	412
Pre-test	20th October - 22th October, 2020	50
Data Collection	1st March- 31st March, 2021 1st September- 5th September, 2021	199

Measurement of the Variable

Table 2: Measurement of the Variable

Serial No	Variable	Measurement	Range
	Physical Health Problem in post-disaster period (Fever, Injuries, Aches and Pains, Diarrhea or Cholera, Skin Diseases)	Scale (5-point Likert scale); {1 (N = Never), 2 (R= Rarely), 3 (S = Sometimes), 4 (O= Often) to 5 (A =Always)}	5 to 11 = Low 12 to 18 = Medium 19 to 25 = High
	Mental Health Problem (Sleep Disturbance, Eating Disturbance, Depression, stress, Anxiety, Paranoid)		4 to 9 = Low 10 to 15 = Medium 16 to 20 = High
	Challenges of post-disaster health management (Medical Support/ first aid, safe drinking water, Sanitation Facilities, Personal Hygiene and Gynecological Issues, victim of violence)		5 to 14 = Low o 25 = High

Form their findings the hypotheses were: i) relationship between loss of wealth/property and psychological impact on women during post disaster period ii) loss of shelter during post disaster period is associated with mental impact on women iii) poor socio-economic condition is associated with producing challenges iv) and relation between access of pure drinking water and prevalence of diseases in post disaster period. Personal and socio-economic background of the respondent were analyzed through descriptive statistics (frequency distribu-

tion) and different statistical tests like Pearson's Chi-square, correlation and OLS regression model were utilized to measure the relationship of different variables.

4. Results

Personal Information of the Respondent

Table no. *3* represents the personal information of *199* women of north Kamarkhola village of Dacope Upazilla who had faced different kinds of disaster in their lifetime. Table shows that the majority of the respondents belonged to the age group of *34* to *47* years and the average age of the respondents was around *39* years old with standard deviation *9.79*. Most of the respondents around *62* percent were the followers of Hinduism and rest of them (*38.7%*) were the followers of Islam. *45.7* percent of them were able to reach primary education which was the highest number around *28* percent of the respondents completed secondary level education and even only *1* percent of them were able to reach tertiary level of education; the average educational qualification was *5.45* class with standard deviation *3.67*. Approximately *90* percent of the respondents were married and only *9.5* percent of them were widow.*84.4* percent from the total respondent were unemployed and rest *15.6* percent were employed. Most of them were housewives (*84.4%*); *7* percent of them were day laborer, *2.5* percent were tailor, *3* percent of them were job holder and rest *3* percent were involved in family-based business. As most of the respondents were housewives, they *(84.4%)* didn't have any income, only *1* percent of the respondent had higher income comparing with others; other *11.1* percent had lower income which was between BDT *5000* to BDT *8000* and *3.5* percent of them had middle range income, the average income of the earned respondents was BDT *7580.65* with *2705.23* standard deviation. The average monthly expenditure of the respondents was BDT *2563.11*. Moreover, *92* percent of the respondents had no savings and only *8* percent had savings around BDT *500* to BDT *1000* where standard deviation was *201.56*.

Table 3: Personal Information of the Respondent

Variable Name	Frequency (%)	Mean (SD)
Age		
20-33	61 (30.7)	
34-47	89 (44.7)	38.97 (9.79)
48-60	49 (24.6)	
Religion		
Islam	77 (38.7)	
Sanatan	122 (61.3)	
Year of Schooling		
Illiterate	39 (19.6)	
Primary Level	91 (45.7)	
Secondary Level	55 (27.6)	5.45 (3.67)
Higher Secondary	12 (6.0)	
Tertiary Level	02 (01)	
Marital Status		
Married	180 (90.5)	
Widow	19 (9.5)	
Employment Status		
Unemployed	168 (84.4)	
Employed	31 (15.6)	

Occupation of the Respondent		
Housewife	168 (84.4)	
Tailor	5 (2.5)	
Day labor	14 (7.0)	
Job holder	6 (3.0)	
Business	6 (3.0)	
Monthly Income of the Respondent		
No income	168 (84.4)	7580.65 (2705.23)
5000-8000	22 (11.1)	
9000-12000	7 (3.5)	
13000-15000	2 (1)	
Monthly Expenditure of the Respondent		
No expenses	96(48.2)	2563.11 (3244.90)
≤2000	74 (37.2)	
2001-8000	21 (10.6)	
8001-15000	8 (4)	
Monthly Savings of the Respondent		
No savings	183 (92)	906.25 (201.56)
Have savings	16 (8)	

Household survey, 2020-2021

Household Information of the Respondent

Table number *4* is about the household information of the respondent. *53.8* percent of the respondents lived in nuclear family which were more than half of the total respondents and most of the family (*63.8%*) had 5 or more than 5 family members; average family member was *5.18*. Maximum heads of the household were husband and only *3.5* percent respondents were the head of their own household. *60.3* percent household were regulated by single income. The average total monthly income of the respondent's house was BDT *15080.40*; besides this the average expenditure of those household were BDT *14859.30* with Standard deviation of *5519.28*. Most of the household had no savings which was around *83* percent and average savings for each family was BDT *942.86*. Around *51* percent of the households had semi-pakka house and around *73* percent of the respondents had traditional sanitation facilities. Most of the respondents (*33.2%*) used to drink water from pond which was given by the government and NGOs. Besides, *27.6* percent respondents used to drink rain water by preserving it for years. The main source of power for most of the household (*81.9%*) was electricity. All of the respondents would response positively to the questions of damage of the house and property during disaster like flood, water logging or cyclone. Around *46.7* percent of the respondents had to face much damage in post-disaster period and only *10* percent of them were the sufferers of less damage in case of property and house.

Table 4: Household Information of the Respondent

Variable Name	Frequency (%)	Mean (SD)
Types of Family by Nature		
Nuclear	107 (53.8)	
Extended	92 (46.2)	
Family Size		
≤4	72 (36.2)	5.18 (1.532)
5≥	127 (63.8)	
Head of the Household		
Husband	141 (70.9)	
Self	7 (3.5)	
Others	51 (25.6)	
Types of Family by Income		
Single earned	120 (60.3)	
Dual Earned	79 (39.7)	
Monthly Household Income		
5000-12000	89 (37.7)	
13000-20000	116 (58.3)	15080.40 (5477.56)
21000≥	14 (7.0)	
Monthly Household Expenditure		
5000-12000	71 (35.7)	14859.30 (5519.28)
13000-20000	116 (58.3)	
2100≥	12(6.0)	
Monthly Savings of the Household		
No savings	164 (82.4)	942.86 (161.40)
Have savings	35 (17.6)	
Types of Houses		
Kathcha	86 (43.2)	
Semi-pakka	101 (50.8)	
Pakka	12 (6.0)	
Types of sanitation		
Traditional	145 (72.9)	
Modern	54 (27.1)	
Sources of Drinking Water		
Pond	66 (33.2)	
Deep Tubewell	36 (18.1)	
Rain Water	55 (27.6)	
Others	42 (21.1)	
Sources of Power		
Solar	32 (16.1)	
Electricity	163 (81.9)	
Others	4 (2.0)	
Information about loss of house and property		
Yes	199 (100)	
No	0 (0)	
Level of Damage by Disaster		
Less Damage	20 (10.1)	
Medium Damage	86 (43.2)	
Much Damage	93 (46.7)	

Household survey, 2020-2021

Health Problems and Challenges in Post-disaster Period

This section is about the post-disaster effects on health and challenges of women in managing the situation which was measured by scale value. According to the collected data it was seen that large proportion of the respondents (around *65* percent) experienced medium level of physical health problems in post disaster period including fever, diarrhea, skin disease, aches and pain. Only *2* percent of the respondents had to face low physical health problems and other *32.2* percent had to face higher problems. Disasters had strongly affected on psychological health. *50.8* percent respondents had to face higher mental health problem, besides, *47.2* percent faced medium mental health problem and only *2* percent faced lower problem in post-disaster period. In this section lower response indicate higher level of challenges and higher response indicates comparatively lower challenges. Moreover, 94 percent respondents had to serious challenges of post-disaster and didn't get any facility to face those challenges. They mainly had to face the problem of getting first aid, availability of drinking water, sanitation facilities etc.

Table 5: Health Problems and Challenges in Post-disaster Period

Physical Health Problem in Post-disaster Period		
Low (5-11)	4 (2.0)	
Medium (12-18)	131 (64.8)	16.60 & 2.79
High (19-25)	64 (32.2)	
Mental Health Problem in Post-disaster Period		
Low (4-9)	4 (2.0)	
Medium (10-15)	94 (47.2)	15.22 & 2.83
High (16-20)	101 (50.8)	
Facilities to Face Challenges of Women in Post-disaster period		
Low (5-14)	187 (94.0)	11.05 & 2.09
High (15-25)	12 (6.0)	

Household survey, 2020-2021

Physical Health Problems in Post-disaster Period and Its Covariates (Chi-square test)

Pearson's Chi Square test had been done to show the association between socio-economic variables and physical health problem. Table shows that, marital status (fisher's exact test=12.132, $p<0.002$), types of family (fisher's exact test=16.311, $p<0.000$), sources of drinking water (fisher's exact test=31.881, $p<0.000$) and mental health problem (fisher's exact test=31.948, $p<0.000$) were highly significant with the physical health problem which was experienced by women in post-disaster period.

Table 6: Physical Health Problems in Post-disaster Period and its Covariates

Independent Variables	Physical Health Problems in Post-disaster Period			Test Statistics$_{(df)}$	P value
	Low (5-11)	Medium (12-18)	High (19-25)		
Marital Status of the Respondents					
Married	2 (1.1)	115 (63.9)	63 (35.0)	12.132^{b} $_{(2)}$	0.002**
Widow	2 (10.5)	16 (84.2)	1 (5.3)		
Types of Family by Nature					
Nuclear	2 (1.9)	85 (79.4)	20 (18.7)	16.311^{b} $_{(2)}$	0.000**
Extended	2 (2.2)	46(50)	44 (47.8)		
Sources of Drinking Water					
Pound	0 (0)	31 (47)	35 (53)	31.881^{b} $_{(6)}$	0.000**
Deep Tube-well	0 (0)	24 (66.7)	12 (33.4)		
Rain Water	0 (0)	42 (76.4)	13 (23.6)		
Others	4 (9.5)	34 (81)	4 (9.5)		
Mental Health Problem in Post-disaster Period					
Low	0 (0)	4 (100)	0 (0)	31.948^{b} $_{(4)}$	0.000**
Medium	4 (4.3)	76 (80.9)	14 (14.9)		
High	0 (0)	51 (50.5)	50 (49.5)		

^{b} Fisher's exact test reported (expected cell less than 5)

$^{**}p\leq0.01$, $^{*}p\leq0.05$

Mental Health Problems in Post-disaster Period and its Covariates (Chi-square test)

Table number 7 is about the mental health problem of women in post-disaster period and its covariate. Pearson's Chi Square test had been done to elaborate the association between variables. It is found that, types of family (nature) (fisher's exact test=8.009, p<0.010), head of the household (fisher's exact test=11.309, p<0.017), types of family (income) (fisher's exact test=10.677, p<0.003), year of schooling (fisher's exact test=34.938, p<0.000), and physical health problem (fisher's exact test=31.948, p<0.000), faced by women in post-disaster period had a higher level of significance with the mental health problem of the respondents.

Table 7: Mental Health Problems in Post-disaster Period and its Covariates

Independent Variables	Mental Health Problems in Post-disaster Period			Test Statistics$_{(df)}$	P value
	Low (4-9)	Medium (10-15)	High (16-20)		
Types of Family by Nature					
Nuclear	4 (3.7)	42 (39.3)	61 (57)	8.009^{b} $_{(2)}$	0.010**
Extended	0 (0)	52 (56.5)	40 (43.5)		
Head of the Household					
Husband	4 (2.8)	58 (41.1)	79 (56)	11.309^{b} $_{(4)}$	0.017**
Self	0 (0)	2 (28.6)	5 (71.4)		
Others	0 (0)	34 (66.7)	17 (33.3)		
Types of Family by Income					
Single Earned	4 (3.3)	46 (38.3)	70 (58.3)	10.677^{b} $_{(2)}$	0.003**
Dual Earned	0 (0)	48 (60.8)	31 (39.2)		
Year of Schooling of the Respondents					

Illiterate	0 (0)	12 (30.8)	27 (69.2)		
Primary Level	0 (0)	40 (44)	51 (56)		
Secondary Level	0 (0)	34 (61.8)	21 (38.2)	$34.938^{b}_{(8)}$	0.000^{**}
Higher Secondary	4 (33.3)	6 (50)	2 (16.7)		
Tertiary Level	0 (0)	2 (100)	0 (0)		
Physical Health Problem in Post-disaster Period					
Low	0 (0)	4 (100)	0 (0)		
Medium	4 (3.1)	76 (58)	51(38.9)	$31.948^{b}_{(4)}$	0.000^{**}
High	0 (0)	14 (21.9)	50 (78.1)		

[b] Fisher's exact test reported (expected cell less than 5)

$^{**}p \leq 0.01$, $^{*}p \leq 0.05$

Challenges of Women in Post-disaster Health Management and Its Covariates (Chi-square test)

A Pearson's Chi Square test for independence with α= .05 had been done to exhibit the relation between different variables and challenges of women in post-disaster period which showed that employment status of women (fisher's exact test= 4667, $p<0.024$) was significant with challenges of women. Another result shows the significant connection between occupation and challenges (fisher's exact test=10.928, $p<0.019$). According to the independence test head of the household was also significant with the challenges faced by women in Dacope Upazila (fisher's exact test= 10.928, $p<0.058$). Challenges of women were highly significant with types of houses (fisher's exact test= 16.023, $p<0.000$), table illustrates that the monthly income (fisher's exact test= 16.201, $p<0.001$) and monthly savings (fisher's exact test= 14.990, $p<0.001$) of the respondent were also significant with challenges. Side by side, monthly household income (fisher's exact test=19.994, $p<0.000$) and household savings (fisher's exact test=7.029, $p<0.019$) were significant with the challenges. Moreover, both physical (fisher's exact test=6.352, $p<0.044$) and mental (fisher's exact test=6.483, $p<0.043$) health problems of the respondent were also significant with the challenges.

Table 8: Challenges of Women in Post-disaster Health Management and Its Covariates (Chi-square test)

Independent Variables	Challenges of Women		Test Statistics$_{(df)}$	P value
	Low (5-14)	High (15-25)		
Employment Status of the Respondents				
Unemployed	161 (95.8)	7 (4.2)	$4.667^{b}_{(1)}$	0.024^{*}
Employed	26 (83.9)	5 (16.1)		
Occupation of the Respondents				
Housewife	161 (95.8)	7 (4.2)		
Tailor	4 (80)	1 (20)		
Day Labor	13 (92.9)	1 (7.1)	$10.928^{b}_{(4)}$	0.019^{*}
Job Holder	5 (83.3)	1 (16.7)		
Business	4 (66.7)	2 (33.3)		
Head of the Household				
Husband	133 (94.3)	8 (5.7)		
Self	5 (71.4)	2 (28.6)	$10.928^{b}_{(2)}$	0.058^{*}
Others	49 (96.1)	2 (3.9)		
Types of houses				

Kathcha	76 (88.4)	10 (11.6)		
Semi-pakka	101 (100)	0 (0)	16.023[b] (2)	0.000**
Pakka	10 (83.3)	2 (16.7)		
Monthly Income of the Respondent				
No income	161 (95.8)	7 (4.2)		
5000-8000	21 (95.5)	1 (4.5)	16.201[b] (3)	0.001**
9000-12000	3 (42.9)	4 (57.1)		
13000-15000	2 (100)	0 (0)		
Monthly Savings of the Respondents				
No savings	176 (96.2)	7 (3.8)	14.990[b] (1)	0.001**
Have savings	11 (68.8)	5 (31.3)		
Total Income of the Household (monthly)				
5000-12000	59 (85.5)	10 (14.5)		
13000-20000	116 (100)	0 (0)	19.994[b] (2)	0.000**
21000≥	12 (85.7)	2 (14.3)		
Monthly Household Savings				
No Savings	158 (96.3)	6 (3.7)	7.029[b] (1)	0.008*
Have Savings	29 (82.9)	6 (17.1)		
Physical Health problems				
Low	4 (100)	0 (0)		
Medium	127 (96.9)	4 (3.1)	6.352[b] (2)	0.044*
High	56 (87.5)	8 (12.5)		
Mental Health Problems				
Low	4 (100)	0 (0)		
Medium	84 (89.4)	10 (10.6)	6.483[b] (2)	0.043*
High	99 (98)	2 (2)		

[b] Fisher's exact test reported (expected cell less than 5)

$^{**}p \leq 0.01$, $^{*}p \leq 0.05$

Bivariate Correlation

Table number 9 illustrates the direction and strength of relationship between challenges of women in post-disaster health management and its covariates. Monthly income (r=.153*) and physical health problem (r=.150**) had lower positive correlation with challenges faced by the respondents. Surprisingly it is found that, year of schooling, family size and mental health problem had no significant relationship with the challenges.

Table 9: Challenges of Women in Post-disaster Health Management and its Covariates (Correlation).

Variables	1	2	3	4	5	6
1. Challenges						
2. Year of Schooling	.100					
3. Monthly Income	.153*	.189**				
4. Family Size	.122	-.084	-.104			
5. Physical Health Problems	.250**	-.078	.068	-.085		
6. Mental Health Problems	-.114	-.402**	-.008	-.007	.389**	

*p≤0.05, **p≤0.01

Low= ≤ .29, Moderate= .30-.49, High= ≥ .50

Ordinary Least Square Regression

Table 10 displays the ordinary least square regression predicting Challenges of Women in Post-disaster Health Management where independent variables were some variables and the value of R^2 = .152 which implies in this study that mentioned variables clarified the challenges of women 15 percent. Among the factors, physical health problem (β=.339**), mental health problem (β=.218**), and family size (β=.145*) positively impacted on the challenges of women in post-disaster health management. On the other hand, age of the participants and year of schooling had no impact on challenges of women in post-disaster health management.

Table 10: OLS Predicting Challenges of Women in Post-disaster Health Management

Independent Variable	**Dependent Variable: *Challenges of Women***
	β (S.E.[a])
R²	**.152**
(Constant)	6.746 (1.432)
Factors	
Age	.136 (.017)
Year of Schooling	.129 (.050)
Family Size	.145* (.091)
Physical Health Problem	.339** (.055)
Mental Health Problem	.218** (.059)

[a] Standard Error
$^{*}p\leq0.05$, $^{**}p\leq0.01$

5. Discussion

According to the collected data it was seen that large proportion of the respondents (around *65* percent) experienced medium level of physical health problems in post disaster period including fever, diarrhea, skin disease, aches and pain. Only *2* percent of the respondent's had to face low physical health problems and other *32.2* percent had to face higher problems. On the contrary, Mondal et al. (2018) found that physical health problems in post-disaster period like cholera, diarrhea, fever, skin diseases had strong correlation with drinking water. *50.8* percent respondents had to face higher mental health problem, besides, *47.2* percent faced medium mental health problem and only *2* percent faced lower problem in post-disaster period. Another study of (Schwartz, Liu, Lieberman-Cribbin, & Taioli 2017) tried to find out the mental effect of disaster as a result from Hurricane Sandy at New York which takes place in 2012. Moreover, 94 percent respondents had to serious challenges of post-disaster and didn't get any facility to face those challenges. On the other hand, another study found that, women took more challenge and responsibility than men during and after disaster, researcher found that the reason of women vulnerability is poverty and traditional gender role in family (Reyes & Lu 2016).

In this study it also found a significant association between those physical health problems and sources of drinking water (fisher's exact test=31.881, p<0.000). In this study also found that year of schooling (p<0.000), classification of family by income (p<0.003) and mental health problem (p<0.000) were highly associated with mental health problem (Schwartz, Liu, Lieberman-Cribbin & Taioli ,2017) also found a positive association between loss of wealth and property with mental health effects of disaster in post-disaster period. In the contrary,

Bell and Folkerth (2016) had found a strong correlation between mental illness from disaster and domestic violence which was also seen from qualitative part of this research paper.

Apart from socioeconomic condition and other facilities create challenges for women in post disaster period, the study was mainly designed to know the challenges of women in post-disaster period. Mondal et al. (2018) showed that married women faced more challenges than other but unfortunately there was no significant relationship between marital status and challenges in this study; one the other hand, physical health problems had higher level of significance with marital status (p<0.002) of women. Reyes & Lu (2017) identified that vulnerability and challenges mostly depend on socio-economic background of the people. There were also a significant association which had been found between health (physical p<0.044, & mental p<0.043) problem and challenges. Result from correlation, it was found that monthly income (r=.153*) and physical health problem (r=.150**) had lower positive relation with challenges of women but year of schooling, family size and mental health problem had no significant relationship with the challenges.

However, according to the study of Rashid & Halder (1998) and Mondal et. al (2018), women during flood and other disasters didn't have access to medical facilities, menstrual hygiene as well as sanitation which makes post-disaster phase more challenging for them. In this study it was found that, most of the women in Dacope Upazila didn't get access to use proper sanitation and medical facilities. Just after disasters they were unable to get essentialities like drinking water, first aids and menstrual equipment which compelled them to live in the unhygienic situation. Most of the women in North Kamarkhola village at post-disaster period reused old cloths as menstrual equipment which even they didn't wash properly. Rahman (2013) and Sohrabizadeh et al. (2017) found that women experienced more violence and domestic roles in post-disaster period because of their loss of wealth and economic insecurity. In this study it was also found that post-disaster phase brought a lot of pressure on women by increasing their work (reconstruction) which was crying need for their recovery.

Conclusion

The findings suggested that many socio-economic statues such as employment, income as well as savings (both personal and household), and house type were the main factors to face the challenges of women in post-disaster period. Both physical health problem and mental health problems contributed a lot to impact on the challenges of women. Proper medical facilities were absent in post-disaster period, so women had to face in their physical problems. Besides, pure drinking water was not available in post-disaster period and this was more responsible to make the situation worse for the women. So, government of Bangladesh should give more focus to the women of this area so that they can be able to maintain a standard of living with proper health and medical facilities. Present government of Bangladesh, has already taken a program to ensure health facilities of women and children and established 13,000 community clinics around the country, many women are still unaware of the facilities. Awareness programs should be increased by governments as well as NGOs. NGOs should come forward to ensuring awareness of proper health management in post-disaster period. Finally, more research is expected to identify the challenges faced by women in post-disaster period and then the authority will take the steps to the welfare of health management among the women in Bangladesh.

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