

Prevalence and Factors Associated with Maternal Stress Among Mothers of Children with Cerebral Palsy in Rural Bangladesh

Hayati Kadir Shahar^{1,2*}, Sankar Chandra Debnath², Norliza Ahmad² and Md. Nazrul Islam³

¹Malaysian Research Institute of Ageing, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia

²Department of Community Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia

³Department of Physiotherapy, National Institute of Traumatology and Orthopedic Rehabilitation, 1207 Dhaka, Bangladesh

ABSTRACT

This research aim to identify the prevalence and factors associated with maternal stress among mothers of children with cerebral palsy in rural Bangladesh. A cross-sectional study was performed among 200 mothers of children with cerebral palsy picked up from rural Bangladesh using a simple random sampling technique. A questionnaire divided into various sections and administered by the researchers was used for data collection. Descriptive statistics and logistic regression models were applied to summarize the respondents' characteristics, main outcomes (maternal stress levels), and factors associated with maternal stress. The overall prevalence of maternal stress among mothers of children with CP was 56.5%, and the median (*IQR*) age of respondents was 30 (14), whereas that of the children with CP was 6 (8). Factors associated with a higher prevalence of maternal stress were older mothers, divorced/separated, living in a nuclear family, income, male children, and higher negative family impact ($p < 0.05$). The factors identified in this study could help to develop policies and strategies to minimize maternal stress associated with parenting children with cerebral palsy in rural Bangladeshi households.

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E-mail addresses:

hayatik@upm.edu.my (Hayati Kadir Shahar)

sankarbd50@gmail.com (Sankar Chandra Debnath)

lizaahmad@upm.edu.my (Norliza Ahmad)

nitor.nazrul@gmail.com (Md. Nazrul Islam)

*Corresponding author

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INTRODUCTION

Cerebral palsy (CP) is the leading cause of childhood disability worldwide (Stavsky et al., 2017). The prevalence of CP worldwide ranges from 1.5 to 4 per 1,000 children

(Arneson et al., 2009; Chauhan et al., 2019; Oskoui et al., 2013). CP encompasses multiple clinical syndromes often associated with chronic and non-progressive motor dysfunction that affects muscle tone, posture, and motion (Rosenbaum et al., 2007; Stavsky et al., 2017). Spastic types of CP are reported to account for 50% of total disabilities among children worldwide (Arneson et al., 2009; Robertson et al., 2017).

Maternal stress is characterized as a situation in which the various parenthood elements lead to a perceived discrepancy between contextual expectations and personal resources (Holly et al., 2019). Caregiving is one of the critical tasks of raising children, and when a child is affected by functional motor disorders, this task will change considerably (Ang & Juhari, 2017; Omole et al., 2017). Women have more responsibility in most societies, raising children, and primary caregivers for children with disabilities are often mothers (Wijesinghe et al., 2014). The fathers play a less dynamic role in the regular hassles of raising a child with special needs, although they give enthusiastic back (Duvdevany & Abboud, 2003; Ribeiro et al., 2014). Some researchers have shown higher rates of parenting stress in parents of children with CP than other parents with typically developing children (Ahmadizadeh et al., 2015; Cheshire et al., 2010; Parkes et al., 2011; Ramanandi & Rao, 2015). Caring and responsibility for a CP child with specific needs may harm the parents' physical and psychological well-being (Ahmadizadeh et al., 2015; Katkic et al., 2017).

Besides, the positive family impacts on childhood disability are attributed to a positive sense that can act as cognitive coping in maternal adaptation for children with disabilities (Schlebusch & Dada, 2018), often associated with parental stress (Ang & Juhari, 2017; Thompson et al., 2013). Assistance from the government and social organizations is critical in reducing mothers' feelings of isolation and frustration (McIntyre & Brown, 2018; Uskun & Gundogar, 2010). The study highlighted the importance of social support in the form of family, friends, and social systems for mothers' well-being, including lower levels of mental and physical distress (Pfeifer et al., 2014; Sepa et al., 2004) and high levels of maternal satisfaction (Glenn et al., 2009). In addition, some authors have investigated the factors associated with maternal stress among mothers of children with CP in different parts of the world. These factors include but are not limited to age of children, gender of children, occupation of mothers, type of family, educational background, income, knowledge of CP, and other key factors related to social support and assessment (Kumari & Singh, 2013; Mouilly et al., 2017; Ribeiro et al., 2014; Thompson et al., 2013).

Specifically, previous studies have shown that CP is a significant health issue among children in Bangladesh (Mobarak et al., 2000; Shahrer et al., 2016). The demographic analysis found that the prevalence of CP was 3.4 per 1,000 live births and that 79.6% of children had CP spasticity with associated impairments, such

as speech problems, intellectual, visual, and hearing (Khandaker et al., 2019; Murthy et al., 2014; Power et al., 2019). The study highlighted that the prevalence of CP in Bangladesh was 3.7 per 1000 children between 1998 and 2018, and the result indicated a considerable increase compared to previous data (May et al., 2020; Murthy et al., 2014). Most Bangladeshi mothers are the core supporters of children with disabilities and are more likely to be affected by these children's problems (Power et al., 2019). Many children with disabilities are treated or managed at home using methods (wheelchairs and walking frames) that are not readily available (Khandaker et al., 2019; Maloni et al., 2010). One of the earliest data on maternal stress in Bangladesh was by Mobarak et al. (2000), in which a prevalence rate of 41.8% was reported among 91 mothers of children with the condition. Nevertheless, crucial factors, including knowledge of CP, informal social support, and positive family feedback, were not investigated. In Bangladesh, mothers of children with disabilities (affected by autism, ADHD, down syndrome, developmental delay, and CP) utilized a double ABCX model to measure maternal stress (Shahrier et al., 2016). Although the findings are significant, family support and institutional social assistance would explain the relationships and methods for reducing maternal stress (Shahrier et al., 2016). A study was conducted in the urban area of Bangladesh among mothers of children with CP to determine the level of depression, stress, and anxiety.

The significant findings were that the sociodemographic characteristics of mothers and the degree of severity using the GMFCS scale influenced the stress level. Results showed that the study did not conclude family and social support. The survey noted that it was necessary to investigate informal and formal support, knowledge, and family support to determine predictors of maternal parenting stress among mothers of children with CP (Power et al., 2019).

Maternal stress among mothers of children with CP has been studied in numerous parts of Bangladesh and other parts of the world (Dieleman et al., 2021; Kumari & Singh, 2013; McConachie et al., 2000; Yilmaz, 2019). Wijesinghe and his colleague (2014) stated that the prevalence of maternal stress was doubled in Sri Lanka compared to developed countries. The prevalence of maternal stress in developed countries such as Sweden and the UK was 26% (Glenn et al., 2009; Parkes et al., 2011). However, maternal stress was 43% in India among mothers of children with CP (Moideen & Mathai, 2018). There have been few studies in Bangladesh that have focused on maternal stress, CP in children, and the factors that contribute to it (Maloni et al., 2010; McConachie et al., 2000; Mobarak et al., 2000; Power et al., 2019; Shahrier et al., 2016). Factors like family support, formal social support, knowledge of CP, and maternal appraisal have not been considered potential predictors of maternal stress. The results of this study will give data on the prevalence of maternal stress and its risk factors among mothers of children with CP in Satkhira, Bangladesh.

The objectives of this study were: (1) to determine the prevalence of maternal stress among mothers of children with CP in rural Bangladesh, (2) to describe the sociodemographic characteristics of mothers and children with CP, including knowledge of CP, maternal appraisal, and formal social support, and (3) to identify maternal stress predictors among these mothers of children with CP.

METHODOLOGY

Study Design, Settings, and Participants

From November 2019 to February 2020, a cross-sectional study was conducted at Rishilpi International Onlus in Satkhira, Bangladesh. Satkhira is in the southwestern region of Bangladesh. There are 2.8 million people living there, and it has a total area of 3858.33 square kilometers (Bangladesh National Portal, n.d.). The institution is a non-profit organization that provides rehabilitation and education services on a global scale. They have a particular focus on children with cerebral palsy. This organization has several sections for children with CP, followed by departments for specialized education, physiotherapy, occupational therapy, speech therapy, and medication. Physiotherapists and physicians evaluate and assess new patients. The physiotherapy department refers patients to other sections for treatment. Every day, 42 patients, mostly children with CP, seek treatment and rehabilitation services from the physiotherapy department. Therapy and rehabilitation treatments are also provided to new patients two to three days later. The

patient is given a twice-weekly therapy program (Tosi, 2023). This institution has data on registration and special education among mothers of children with CP. There were few activities and facilities in government and private rehabilitation centers for children with cerebral palsy (Nuri et al., 2019).

The proforma was designed to collect detailed clinical information on children with CP, such as hospital number, sampling number, diagnosis, and admission. Besides, public health experts (two associate professors and one senior lecturer) evaluated the content validity of the questionnaires. At the same time, 10% of respondents were recruited for the pre-test to check the reliability and face validity of the instruments. The researcher determined the face validity of each item in the questionnaires. The validated questionnaires were back-to-back-translated from English to Bengali. A simple random sampling method was used to select the respondents in this study. Respondents were randomly nominated from a list of all registered children with CP at the physiotherapy department at Rishilpi International Onlus. A computer random number generator was used to select 200 eligible respondents. The Lemeshow formula estimated the sample size (Lemeshow et al., 1990). Furthermore, the researchers provided the questionnaires and assisted the participants in understanding the questionnaires. The mothers were given the respondent's information sheets and consent forms during the study. The questionnaires took an average of 25 minutes to complete. Before and after

treatment, questionnaires were distributed to the mothers of children with CP. The mothers who visited the physiotherapy department have been carefully selected for the following inclusion criteria: (1) the age group of children with CP was between one year and twenty-one years, (2) mothers directly involved in caring for the child with CP, and (3) mothers who have written permission to participate in the study.

Measures

A guided questionnaire was divided into five sections. Sociodemographic variables of mothers and children with CP were the mother's age, educational qualification, occupational status, marital status, types of family, family income, age of children, child's gender, cost of treatment, and the number of children. The age groups of mothers were selected above 30 years because this institution could allow only mothers to be caregivers of children with CP. During data collection, most of the mothers preferred to take the treatment for their children, and they were from different age groups. Besides, mothers' knowledge of CP was evaluated using the Knowledge of Cerebral Palsy Questionnaire (KCPQ; Dambi et al., 2016). The KCPQ consisted of 20 items, and responses were presented in three options: yes, no, and not sure. Correct answers were accorded a score of 2 points, while incorrect answers were accorded 0 points. Also, four subscales were included: the definition of CP (3 items), the etiology of CP (6 items), the clinical symptoms of CP (5 items), and the management of CP (6 items).

The maternal appraisal was assessed using the Family Impact of Childhood Disability Scale (FICD; Trute et al., 2007). The segment involved 20 items, 10 positive and negative, respectively. The specific FICD items were categorized under six aspects: time, cost, community relationship, family relationship, perception, and stress. Responses were submitted using a 4-point Likert scale ranging from 1 (*not at all*) to 4 (*substantial degree*). The Family Support Scale (FSS) was used in assessing social support (Dunst et al., 1984). The FSS presented respondents' perceptions of formal social support (professional agencies, medicine specialists, daycare centers, clubs, and parent groups). The level of FSS included eight items based on a 5-point Likert scale ranging from *not available* (0) to *extremely helpful* (5). The ranking score for formal social support was between 8 and 40 (Dunst et al., 1984).

Maternal stress was measured using the Parental Stress Scale (PSS; Berry & Jones, 1995). The PSS can measure the parenting efficacy of mothers or carers of children with CP across a wide age range (Berry & Jones, 1995; Thompson et al., 2013). The section consisted of 18 items, further classified into positive items ($n = 8$) and negative items ($n = 10$). The positive items were based on emotional profits and personal improvement, whereas examples of negative items included demands on resources and limitations. A 5-point Likert scale was used to preset the responses, with 1 representing *strongly disagree* and a score of 5 representing *strongly agree*. For the

negative terms, the 10 items were coded accordingly, whereas those of the positive terms were reverse coded (1 = 5, 2 = 4, 3 = 3, 4 = 2, and 5 = 1).

Statistical Analysis

The IBM Statistical Package for Social Sciences (SPSS, Chicago, USA) version 25 was used. The assumption of normality was checked using the Shapiro-Wilk test and histograms graphically. The sociodemographic characteristics, explanatory and dependent variables were summarized using descriptive statistics. Continuous data not normally distributed were described in the median, interquartile range (*IQR*), and percentages were applied for categorical data.

Median scores were computed for each construct: knowledge of CP, maternal appraisal, social support, and maternal stress. Based on the score obtained by each respondent and the overall median score, the KCPQ was divided into two groups: good and poor knowledge. The Cronbach's alpha of the KCPQ in the present construct was 0.74 (Dambi et al., 2016). Positive family impact (PFI) and negative family impact (NFI) scores were measured by summing up the ten items in each subscale, and the range of each subscale was between 10 and 40 (median score = 24). Respondents with 24 and above scores were regarded as having a higher positive family impact, whereas scores below 24 had a lower positive family impact (Trute et al., 2007). For maternal appraisal, the median score of 22 was used to categorize the FCID to higher and

lower negative family impact. Reliability analysis was conducted by assessing the internal consistency, and the alpha of 0.74 and 0.81 was obtained for the positive subscale (PFI) and negative subscale (NFI), respectively (Trute et al., 2007). The Cronbach's alpha was consistent with the earlier study (Ang & Juhari, 2017). Social support was categorized using median scores into two groups: high and low formal social support. The internal coefficient alpha of formal social support was 0.73, similar to the previous study (Dunst et al., 1984; Glenn et al., 2009). For maternal stress, a median score of 50, according to the PSS, was used to categorize the level of maternal stress. Respondents with scores of 50 and above were considered as experiencing maternal stress. The reliability of PSS was 0.79, thus corresponding to an acceptable level of internal consistency (Berry & Jones, 1995; Ribeiro et al., 2014).

The association between independent and dependent variables has been calculated using the Chi-square test. The assumption of logistic regression was followed in this study. The simple logistic regression model was constructed for each variable and outcome (maternal stress), and the values significant at $p < 0.25$ were selected for the next multiple logistic models. In the multiple logistic regression models, all the significant factors were introduced into the model. A forward procedure was applied to determine the final predictors of maternal stress with $p < 0.05$. Estimates of parameters were presented in odds ratios and 95% confidence intervals. The model fit

was assessed using the goodness of fit and Hosmer Lemeshow tests.

Ethical Approval

Ethical permission was acquired from the Ethics Committee for Research Involving Human Subjects, Universiti Putra Malaysia, Ref. No UPM/TNCPI/RMC/JKEUPM/1.4.18.2 (JKEUPM). Written informed consent was obtained from all participants before data collection.

RESULTS

Descriptive Analysis

The sociodemographic information of mothers is shown in Table 1. The age range

of mothers was between 18 and 58 years old, and the median age was $30 \pm IQR (14)$. The majority of the mothers (120; 60%) were in the older age group. Half of the participants (100; 50%) had primary qualifications compared to other groups, while 74.5% ($n = 149$) were homemakers. For the child characteristics, the age of the children ranged from 1 to 21 years, with a median age (IQR) of 6 (8). Most children (103; 51.5%) were under seven, of which 120 (60%) were male. Around 74 (37%) mothers of children with CP revealed that they spent between BDT 3000 to 5000 per month for treatment purposes. Other characteristics of the respondents and children are summarized in Table 1.

Table 1
Sociodemographic characteristics of mothers and children (N=200)

Variables	Median \pm IQR	Frequency (n)	Percentage (%)
Age of mothers	30 \pm 14		
<30 years		80	40
>30 years		120	60
Education of mothers			
Primary		100	50
Secondary		69	34.5
Bachelor/above		31	15.5
Occupation of mothers			
Employed		51	25.5
Housewife		149	74.5
Marital status			
Single		14	7
Married		167	83.5
Divorced/Separated		19	9.5

Table 1 (Continue)

Variables	Median \pm IQR	Frequency (n)	Percentage (%)
Types of family			
Nuclear family		78	39
Extended family		122	61
Family income			
< BDT10,000		57	28.5
BDT 10,000 to 20,000		89	44.5
>BDT 20,000		54	27
Age of children	6 \pm 8		
<7 years		103	51.5
>7 years		97	48.5
Gender of child			
Male		120	60
Female		80	40
Cost of treatment			
<BDT 3000		70	35
BDT 3000 to 5000		74	37
> BDT 5000		56	28
Number of children			
1-2		116	58
3-4		73	36.5
>4		11	5.5

Note. IQR = interquartile range, BDT = Bangladeshi taka

Based on the cut-off point of 50 \pm 8 (median \pm IQR), the scale of PSS was used to identify respondents with maternal stress. The prevalence of maternal stress was 56.5% (113), whereas 43.5% had a lower stress level (Table 2). The median (IQR) knowledge score on CP was 23 (6), as shown in Table 2. Overall, based on the median score of 23, a higher proportion of the respondents (57%) had poor knowledge of CP than those considered to have good

knowledge of CP (43%). Among the respondents, 111 (55.5%) had a higher positive family impact, while 44.5% (89) of the mothers had a lower positive family impact. Besides, 47% (94) of the mothers reported a lower negative family impact, whereas 53% (106) reported a higher negative one. In the study, around 54.5% (109) received higher formal social support, while the remaining 45.5% (91) had lower formal social support.

Table 2
Distribution of mothers' knowledge, maternal appraisal, social support, and maternal stress (N=200)

Variables	Median \pm IQR	Frequency (n)	Percentage (%)
Knowledge on CP	23 \pm 6		
Poor		114	57
Good		86	43
Maternal appraisal			
Negative family impact	22 \pm 7		
Low		94	47
High		106	53
Positive family impact	24 \pm 8		
Low		89	44.5
High		111	55.5
Social support (formal)	21 \pm 6		
Low		91	45.5
High		109	54.5
Maternal stress	50 \pm 8		
Low		87	43.5
High		113	56.5

Bivariate Analysis

The chi-square test showed that mothers' education, occupational status, child's age, cost of treatment, number of children, knowledge of CP, and positive family impact were found to have no association with maternal stress. The crude odds ratio (simple logistic regression model) of the variables

significantly associated with maternal stress is presented in Table 3. Factors associated with maternal stress included mothers' age, marital status, family types, family income, child's age, and gender. Other factors in the simple logistic model were negative family impact.

Table 3
Crude odds ratio and 95% CI of maternal stress and associated factors among mothers of children with CP

Variables	Beta	Wald	df	Crude OR	95% CI		p
					LL	UL	
Age of mothers							
<30 years					ref		
>30 years	1.412	21.256	1	4.103	2.252	7.478	0.001***

Table 3 (Continue)

Variables	Beta	Wald	df	Crude OR	95% CI		p
					LL	UL	
Marital status							
Single					ref		
Married	0.156	0.079	1	1.169	0.393-3.480		0.779
Divorced/Separated	1.674	4.112	1	5.333	1.058-26.898		0.043*
Types of family							
Nuclear family	0.784	6.709	1	2.191	1.210-3.965		0.010*
Extended family					ref		
Family income							
<BDT 10,000	-0.842	4.616	1	0.431	0.200-0.929		0.032*
BDT 10,000 to 20,000	0.848	5.466	1	2.335	1.147-4.753		0.019*
>BDT 20,000					ref		
Gender of child							
Male	0.611	4.356	1	1.842	1.038-3.269		0.037*
Female					ref		
Negative family impact							
Low					ref		
High	0.921	9.896	1	2.512	1.415-4.458		0.002**

Note. OR = odds ratio, CI = confidence interval, df = degree of freedom, ref = reference group, LL = lower limit, UL = upper limit

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Multivariate Analysis

In the multiple logistic regression models, compared to the age of mothers below 30 years, mothers above 30 years ($OR = 2.995$, $95\% CI = 1.414-6.342$, $p = 0.004$) had higher chances of experiencing maternal stress. Mothers of children with CP who were either divorced or separated ($OR = 33.056$, $95\% CI = 4.462-244.899$, $p < 0.001$) and living in a nuclear family (OR

$= 3.742$, $95\% CI = 1.702-8.231$, $p < 0.001$) had higher odds of maternal stress relative to single mothers and those living with an extended family, respectively. The odds for maternal stress were higher among mothers who earned from BDT 10000 to 20000 ($OR = 2.712$, $95\% CI = 1.143-6.433$, $p = 0.024$) than those with above BDT 20000 and male children ($OR = 2.184$, $95\% CI = 1.061-4.497$, $p = 0.034$) relative to female children.

The odds of maternal stress were higher in mothers with higher negative family impact ($OR = 2.395$, $95\% CI = 1.168-4.908$, $p = 0.017$) than those with lower negative family impact in Table 4.

Table 4
Adjusted odds ratio and 95% CI of maternal stress and associated factors among mothers of children with CP

Variables	Beta	Wald	df	Adjusted OR	95% CI		p
					LL	UL	
Age of mothers							
<30 years					ref		
>30 years	1.097	8.210	1	2.995	1.414-6.342		0.004**
Marital status							
Single					ref		
Married	0.721	1.073	1	2.056	0.526-8.044		0.300
Divorced/Separated	3.498	11.722	1	33.056	4.462-244.899		0.001***
Types of family							
Nuclear family	1.320	10.769	1	3.742	1.702-8.231		0.001***
Extended family					ref		
Family income							
<BDT 10,000	-0.197	0.179	1	0.821	0.329-2.047		0.672
BDT 10,000 to 20,000	0.998	5.122	1	2.712	1.143-6.433		0.024*
>BDT 20,000					ref		
Gender of child							
Male	0.781	4.497	1	2.184	1.061-4.497		0.034*
Female					ref		
Negative family impact							
Low					ref		
High	0.873	5.689	1	2.395	1.168-4.908		0.017*

Note. OR = odds ratio, CI = confidence interval, df = degree of freedom, ref = reference group, LL = lower limit, UL=upper limit

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

DISCUSSION

The present study was carried out to determine the prevalence and factors associated with maternal stress among mothers of children with CP in Bangladesh.

The prevalence of maternal stress was 56.5% among the respondents. It means that very high maternal stress among mothers of children with CP is more common than in the general population (Kulsoom & Afsar,

2015; Maloni et al., 2010). The likely explanation for the high percentage of maternal stress among mothers of children with CP could be that most respondents in the study stated low-income resources with inadequate support from family and professionals. Some studies reported that the government provided affordable health care and rehabilitation services that were poorly implemented and planned. These findings are consistent with those reported in Bangladeshi, Sri Lankan, and Brazilian studies (Mobarak et al., 2000; Parkes et al., 2011; Power et al., 2019; Ribeiro et al., 2014; Wijesinghe et al., 2014).

The present data showed that the median age of mothers was 30, relatively similar to the previous study (Power et al., 2019). There was a significant association between the age of mothers and maternal stress. Research in Bangladesh, Morocco, and Turkey confirms this study's findings, which stated that older mothers of children with CP were more likely to have maternal stress than younger mothers. It was concluded that mothers were more responsible for daycare (feeding, sleeping, bathing, and prolonged exercise). Such care could make it difficult for mothers to simultaneously manage their child's health problems and day-to-day needs (Mouilly et al., 2017; Panditha & Wickramasinghe, 2016; Yilmaz, 2019). In other words, the chances of maternal stress were higher among divorced/separated mothers than single counterparts. This result contradicted prior studies reporting that married mothers were more likely to have maternal stress (Glenn et al., 2009; Katkic

et al., 2017; Mouilly et al., 2017). The main reason could be that divorced mothers were already emotionally traumatized, coupled with the primary caregivers for children with CP, and worried about their child's future. These events heighten the likelihood of experiencing maternal stress when compared to mothers without such challenges. It was found from the present study that the level of education and occupation of mothers was no significant association with maternal stress (Neece et al., 2012; Ribeiro et al., 2014).

In the current study, types of family influenced the prevalence of maternal stress, with mothers from a nuclear family experiencing higher maternal stress than those from an extended family. Similarly, studies conducted in Sri Lanka and India exposed that mothers with core families were more likely to have maternal stress than the extended family. Findings established that mothers from core families faced overtime family functioning and more challenges with fulfilling the general needs of the families (Ramanandi & Rao, 2015; Wijesinghe et al., 2014). Such a condition hinders support from other family members, as observed in the extended family (Christopher et al., 2020). The status of family income revealed that there was statistically significant maternal stress. The empirical findings reported that most mothers earned an average monthly income, which aligns with earlier studies (Kumari & Singh, 2013; Omole et al., 2017). Financial difficulties may negatively affect the child and family's effective social integration. It may lead to restricting access to health

care services, purchase of equipment, and communication. Previous scholars have accepted this declaration that family income was an independent predictor of maternal stress (Mouilly et al., 2017; Yilmaz, 2019).

The child's age, the cost of treatment, the number of children, and knowledge were not significantly related to maternal stress. Our findings exposed that the child's gender was a significant predictor of maternal stress. Male children with CP had a greater influence on maternal stress than female children. The finding contradicted the previous studies (Mouilly et al., 2017; Panditha & Wickramasinghe, 2016). It could be related to the fact that male children are highly treasured in Bangladeshi families, which may increase the emotional and psychological downturn experienced by mothers. These events may contribute to the stress faced by parenting mothers (Shahrier et al., 2016). However, the negative family impact was significantly associated with maternal stress. The study's findings are consistent with a survey conducted in Malaysia and Canada (Ang & Juhari, 2017; Mouilly et al., 2017). The negative family impact is characterized by poor relationships between caregivers and family members, restriction and isolation, having a negative view of raising children with CP, and disruption of the regular family routine. These events may increase the stress experienced by a couple with the fact that they have to care for a child with CP (Trute et al., 2007). Formal social support was not a significant predictor of maternal stress.

In the present analysis, we consider the strengths and limitations. The strengths include a high response rate in Bangladesh. Besides, the respondents were randomly selected, and the instrument was validated. The pre-test consisted of recruiting 10% of the total respondents to verify the reliability and face validity of the instruments. Nevertheless, the study has a few limitations. Using guided questionnaires assisted the respondents in writing and reading while considering the possibility of respondent bias. The study was cross-sectional. As there have been mothers of children with the extreme type of CP, there are chances of over-representing findings, while some respondents may be reluctant to reveal complete information. The study was conducted in one district of Bangladesh, which may not represent the population of mothers in general. Fathers may be involved in parenting the CP child; thus, future studies might consider enrolling both fathers and mothers. An educational intervention program is recommended for future research among caregivers of children with CP. This study recommended further study in rural and urban areas using coping strategies and quality of life among mothers of children with CP.

CONCLUSION

The present study was carried out to determine the prevalence and factors associated with maternal stress among mothers of children with CP in Bangladesh. The prevalence of maternal stress was

56.5% among the respondents. It means that very high maternal stress among mothers of children with CP is more common than in the general population. Moreover, the factors influencing maternal stress among mothers of children with CP in rural Bangladesh were older mothers, types of family, income, child's gender, and negative family impact. This study will assist the government in developing policies and strategies to minimize maternal stress associated with parenting children with CP in rural Bangladeshi households. Moreover, the study's findings will help the various communities and organizations understand and effectively handle the supportive responsibilities for mothers of children with CP.

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