ORIGINAL ARTICLE

THE ASSOCIATION BETWEEN PARENTS' AND CHILD'S POST-TRAUMATIC STRESS DISORDER (PTSD) SYMPTOMS AMONG NEPALESE CHILDREN EXPOSED TO THE 2015 EARTHQUAKE

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Abstract

Objectives: **Emotional, functional and psychological balance of the parents towards their children during disaster is related to children's psychopathological symptomatology. This study aims to identify the association between types of parental PTSD symptoms and children's PTSD symptoms affected by 2015 earthquake in Nepal.** ***Methods:*** **A community-based cross-sectional study was carried out in Kathmandu district fifteen months after the 2015 earthquake. Multi-stage cluster sampling was used to collect 800 earthquake-affected children of age 7-16 years and their parents. Face-to-face structured interview with Children PTSD Symptoms Scale (CPSS), Impact Event Scale (IES) and Family Assessment Device (FAD) were done. Logistic regression was done to identify the association between parental and children PTSD symptoms.** ***Results:*** **Of all 800 children, 28.9% had both parents without any symptoms of PTSD, 36.6% had mother, and 3.6% had father with PTSD symptoms whereas 12.2% had single parent without PTSD symptoms. Children having both parents with PTSD symptoms were almost 7 times [95% Confidence Interval, CI = 4.21, 10.75], children having mother with PTSD symptoms were 2.6 times [95% CI = 1.16, 5.64] and those with father having PTSD symptoms were 3.85 times [95% CI = 2.65, 5.58] more likely to have severe PTSD symptoms, compared to those without any parental PTSD.** ***Conclusion:*** **Consideration and assessment of maternal, paternal and both parents PTSD symptoms were quite prominent required an intervention for children stress reactions or PTSD symptoms. Role of father in children's stress reaction cannot be ignored.** ***ASEAN Journal of Psychiatry, Vol. 18 (2): July – December 2017: XX XX.***

Keywords: Parents, Children, Earthquake and PTSD Symptoms

Introduction

Trauma survivors with Post-Traumatic Stress Disorder (PTSD) have greater rate of familial psychopathology, compared to individuals similarly exposed who do not have PTSD [1,2]. Parenthood conveys many concerns regarding children's growth and development. The concept of a parent "as a protective shield" has been extensively used in describing the role of parents as a primary care taker for their children and in keeping away any harm, threat and adverse situation [3]. This parenting role has been described as a basic motivational system in parents [4]. This is usually activated but actions may be blocked during intense stress, making parents psychologically distressed, and feel that they have failed in keeping their child away from harm and threat, leading to the feeling of guilt. These negative emotions along with their concern about their children may induce PTSD

symptoms in parents [5]. Feeling of shortcomings in meeting their children's need may add to the perception of fewer competent parents.

Parents with depressive mood or stress exhibit a lack of control over their environment and inability to draw the line of disciplines for their children [6]. Feeling of incompetent and guilt may increase their withdrawal behavior towards their children and result in reduced parental engagement and availability to the children. This may also bring about lack of support for the child's emotional and behavioral regulations [7], preventing children to develop ego strength and ability to recoverfrom adverse situation. This negative interaction may lead to the development of psychological distress among them [7]. Therefore, it can be argued that parental psychological status in the stressful condition has a great impact on children's emotional and behavioral regulations, security and adversity they face from the stressful situation.

Parental PTSD, in particularly has been demonstrated to be associated with PTSD symptoms and other psychopathology in children. Clinical observation and empirical research have also suggested that the children's and parents' PTSD is associated [8]. Previous researchers identified concordant responses in parents (mostly in mothers) and children who were exposed to the same trauma [9,10]. Several studies have been focused on maternal trauma and their negative parenting resulting in the psychological sequel of children [11,12]. Maternal role is considered an important part in overall development of a child so researchers have given priority to the maternal trauma in the previous studies [12, 9, 13]. Children are closer to their mother, and it is often concluded that children with maternal psychopathology are more vulnerable to the effect of trauma exposure. However, role of father and his emotion in children emotional regulation cannot be ignored. Limited studies have considered paternal role in children psychopathology [8, 14, 15]. Central role of father in the family is very common in Asian culture. A study found that father's qualities are more important in children and adolescent health than mother's qualities [16]. Thus it was an interest to extend the understanding of the previous studies about the role of paternal PTSD symptoms on children PTSD symptoms. Better understanding with regards to the relation between PTSD among parents and children warrants careful study of PTSD symptoms of children and their respective parents (both mother and father) [8].

In 2015, Nepal was destructed by two powerful earthquakes. Thousands of families with their children were left homeless and several of children lost their parents and relatives. Increased burden of returning into normal life after disaster, financial burden and poor resilience has increased intensity of stress among the survivors of earthquake. Kathmandu was one of the most affected areas by 2015 earthquake.

A specific association between parental PTSD occurrence and the occurrence of PTSD in children has been previously reported. Most of the studies focused on maternal PTSD and its relation with children PTSD. However, association of parental PTSD symptoms with PTSD symptoms of children has been still unclear in terms of types of parental PTSD. Limited studies have assessed the roles of father and mother separately. Nepal is a patriarchal society; roles of males in the family and role of father in a child's life are influential. Even though, children are close with mother but while reaching out to parents, father cannot be forgotten in such society. Therefore, it is essential to assess the role of both father and mother while looking at their associations with children's PTSD symptoms. Thus, in this present study, we examined children's stress reaction, their mother and father separately. The main aim of the study was to identify the effects of parental PTSD symptoms on the PTSD symptoms of children who were affected by the 2015 Nepal Earthquake.

Methods

Study setting and participants

A community-based cross-sectional study was done in Kathmandu District, Nepalin September and October 2016, which were 15 months after the 2015 earthquake. Children aged 7-16 years, and their parents who had

been living in Kathmandu before the 2015 earthquake, and for at least 6 months prior to the date of the interview were recruited in the study, using a multi-stage cluster sampling method. Two urban and three sub-urban municipalities of Kathmandu Valley were selected. From each selected municipality, 10 wards were selected with probability proportional to size (PPS) based on the number of households in each ward. Altogether, 800 children and their parents from selected wards were chosen randomly. Trained research assistant and two child psychologists were employed to interview eligible subjects at their home (Details of the sampling and data collection methods are to be published elsewhere).

Ethical approval was taken from Nepal Health Research Council (ref no 150) and Prince of Songkla University (ref no 59-183-18-5). Verbal and written consent was taken from family and children. Anonymity and confidentiality were maintained throughout the study.

Instruments

Child-PTSD symptoms scale (CPSS)

PTSD symptom severity was assessed by the Child-PTSD symptoms scale (CPSS), a translated and validated version of a questionnaire based on the Diagnostic and Statistical Manual of Mental Disorder (DSM-IV) diagnostic criteria of childhood PTSD. CPSS has 17 items for severity of PTSD symptomology, each on a 4-point Likert scale (0=never, 1=once in a week, 2=2-4 times in a week and 3=5 or more times in a week) therefore, the range of total score is 0 to 51, with higher score indicating more severe PTSD symptoms. In the present study, the total score was categorized into score<=20, no and mild PTSD symptoms and score >20, having moderate to severe PTSD symptoms. The clinical cut-off score 20 was derived from a validation study in Nepal to classify children with PTSD symptoms for the need of treatment [17].

Impact of Event Scale (IES)

Parental PTSD symptoms were assessed by the IES. It is a 22-item self-report measure that assesses subjective distress caused by a traumatic event. Items are rated on 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). This scale yields a total score ranging 0 to 88 and two sub scale scores; avoidance and intrusion can be calculated. In this study, a total score is used, where score exceeding 24 considered meaningful for presence of PTSD symptoms [18,19].

General family functioning

It was measured by a sub-scale of the Family Functioning Assessment Device, which assess the overall functioning, family structures, organization and transactional patterns in the family. It is a 12 items 4-point Likert scale where the score more than 2.0 indicates unhealthy functioning. The questionnaire was checked for face validity by a group of experts. Cronbach's internal consistency index from the pilot study was 0.86. The whole set of the questionnaire also includes child's and parents' socio-demographic characteristics and their perceivedseverity of earthquake exposure.

Statistical Analysis

Epi-data 3.1 was used for data entry and Statistical Software R version 3.3.2 was used for data management and analysis. Descriptive data are presented with percentage, mean and standard deviation. The main outcome variable was child's PTSD symptoms. Stepwise logistic regression was done to identify the association of types of parental PTSD symptoms with the severity of PTSD symptoms among children, adjusted fordemographic characteristic and family functioning variables. A p-value of <0.05 was considered statistically significant.

Results

Parents' characteristics are listed in Table 1 and Table 2 explains the demographics of the children and family function. Of all 800 children, 768 had mother and 638 had father still living with them. Among fathers, the majorities were in 30-40 (63.6%) years age group, and were of Hindu religion (74.6%). About one-fourth of fathers had secondary-

level education and was engaged in business. Similarly, the majority (77.9%) of mothers was 30-40 years and was Hindu (72.4%). About thirty percent of mothers had primary level education and were engaged in business. In the entire parent sample, 27.9% of fathers and 56.2% of mothers had PTSD symptoms. The prevalence of PTSD symptoms was found higher among mothers having primary education level (29.6%) and mothers engaged in business (29.9%).

Table 2 shows the demographic characteristics of the children. About 60% of the respondents were at their school age, and 52% were female. Majority of children (45.1%) was attending primary level education, and 71.4% were of Hindu religion. Moreover, looking into the general family functioning, majority of children's families (97.5%) had poor family functioning. Overall prevalence of severe PTSD symptoms among children was 51.12%.

Table 1. Demographic Characteristics of Parents

Demographic information	Mother (n=786)	Father (n=638)
Education		
Illiterate	76 (9.7)	66 (10.3)
Can read and write	145 (18.4)	64 (10.0)
Primary	233 (29.6)	96 (15.0)
Secondary	178 (22.6)	169 (26.5)
Higher secondary	64 (8.1)	118 (18.5)
Graduate	90 (11.5)	125 (19.6)
Age		
Less than 30 Years	59 (7.50)	9 (1.4)
30-40 years	612 (77.9)	406 (63.6)
Above 40	115 (14.6)	223 (35.0)
Occupation		
Business	235 (29.9)	162 (25.4)
Government Service	87 (11.1)	110 (17.2)
Private service	109 (13.9)	91 (14.3)
Agriculture	177 (22.5)	129 (20.2)
Others	178 (22.6)	146 (22.9)
Religion		
Hindu	569 (72.4)	476 (74.6)
Others	217 (27.6)	162 (25.4)

**Note: other religion includes Buddhist, Christian, Muslim and minor religions*

Table 2. Demographic information of children and family functioning

Demographic information	Frequency (n=800)
Age	
School Age	464 (58.0)
Adolescent	336 (42.0)
Gender	
Male	384 (48.0)
Female	416 (52.0)
Education	
Primary	361 (45.1)
Lower secondary	291 (36.4)
Higher Secondary	148 (18.5)
Religion	
Hindu	571 (71.4)
Buddhist	163 (20.4)
Christian	35 (4.4)
Muslim	15 (1.9)
Others	16 (2.0)

Table 3 (cont). Demographic information of children and family functioning

Demographic information	Frequency (n=800)
Ethnicity	
Brahman	100 (12.5)
Chettri	205 (25.6)
Newar	167 (20.9)
Others	328 (41.0)
Demographic of family	
General family Functioning	
Healthy general functioning	20 (2.5)
Unhealthy general functioning	780 (97.5)

Table 3 describes the prevalence of PTSD symptoms among children according to type of Parental PTSD symptoms. In the entire sample of the children, 28.9% had both parents without any symptoms of PTSD, 36.6% had mother, 3.6% had father with PTSD symptoms whereas 12.2% had single parent without PTSD symptoms. The prevalence of PTSD symptoms was found lowest among the children with no parental PTSD symptoms (69.7%), compared to those with a single parent with PTSD symptoms (70.4%) or both father and mother having symptoms (74.5%).

Table 4. Prevalence of severe PTSD symptoms in children according to maternal and paternal PTSD symptoms

Children with and without Parental PTSD symptoms	Total Sample (n=800)	PTSD symptoms among children		p-value (χ^2)
		Mild Symptoms (n=391)	Severe Symptoms (n=409)	
Children with no Parental PTSD	231 (28.9)	161 (69.7)	70 (30.3)	<0.001
Children with Paternal PTSD	29 (3.6)	14 (48.3)	15 (51.7)	0.900
Children with Maternal PTSD	293 (36.6)	109 (37.2)	184 (62.8)	<0.001
Children with Both parents PTSD	149 (18.6)	38 (25.5)	111 (74.5)	<0.001
Children with single Parent without PTSD Symptoms	98 (12.2)	69 (70.4)	29 (29.6)	<0.001

*Notes: p-value refers the chi-squared test for the univariate association of children PTSD symptoms with parental PTSD symptoms PTSD = Post-traumatic stress disorder.

Association between Parental PTSD and Children PTSD Symptoms

In Table 4, all the children without any parental PTSD are compared to those with only maternal PTSD symptoms, only paternal PTSD symptoms, single parental PTSD symptoms and both parents with PTSD symptoms. The result reveal significant differences in severity of PTSD symptoms between the children with no parental PTSD and those with either of their parents or both with PTSD symptoms after controlling for children's age, gender, education and general family functioning.

Children having both parents with PTSD symptoms were 6.72 [95% CI 4.21, 10.75] times more likely than children with parents having no PTSD symptoms to have severe symptoms of PTSD. Moreover, children having mother with PTSD symptoms were 2.56 times [95% CI 1.16, 5.64] and those with PTSD father were 3.85 times [95% CI 2.65,

5.58] more likely to have severe PTSD symptoms, compared to those without any parental PTSD.

Table 5. Association between Parental PTSD and Children PTSD symptoms

Parental PTSD types	Crude OR	Adjusted OR	p-value	P (LR-Test)
Children with no Parental PTSD (ref)	1	1[a]		<0.001
Children with Maternal PTSD only	2.46 (1.13,5.38)	2.56 (1.16,5.64)[b]	0.026*	
Children with Paternal PTSD only	3.88 (2.69,5.61)	3.85 (2.65,5.58) [b]	<0.001***	
Children with Both parents PTSD	6.72 (4.32,10.68)	6.72 (4.21,10.72)[c]	<0.001***	
Children with single Parent without PTSD Symptoms	0.97 (0.58,1.62)	0.97 (0.57,1.60) [a]	0.898	

Notes: Subgroups with different superscripts are significantly different with each other. PTSD = Post-traumatic stress disorder. OR = Odds ratio. P (LR-Test) = Likelihood Ratio Test. The odds ratios were obtained by logistic regression after controlling for demographics of child and family functioning.

Discussion

This study confirms the earlier findings that PTSD symptoms among the children after any traumatic or stressful situation are significantly influenced by their parent's psychopathology. The overall prevalence of severe symptoms of PTSD among the children was 51.12%, even after a year of earthquake. This is possibly due to the most severe magnitude of the earthquake in eight decades in Nepal and went on terrifying children and families several months after it occurred. Furthermore, there were multiple strong aftershocks that might have instigated children in re-experiencing the trauma.

The prevalence of PTSD symptoms among mothers of children was 56.2% and between fathers was 27.9%. This is in keeping with a previous study [8] where they reported higher prevalence PTSD symptoms among mothers than fathers. There have been several studies explaining the role of gender in the PTSD symptoms and its reactions. Females are found to be more vulnerable in the stressful situations and are at greater risk in development of PTSD symptoms than men [20] because of their lower threshold to threat appraisal as compared to men. Upon the examination of the prevalence of children PTSD symptoms by the parental status of PTSD symptoms, it is stressed that children's PTSD symptoms are affected by presence or absence of PTSD symptoms in the parents, and this finding is lined up with other previous studies [14]. It became clear that children who had parents with no PTSD symptoms have lower prevalence of severe PTSD symptoms.

The prevalence of severe PTSD symptoms among the children with maternal PTSD symptoms was higher than both parents having no PTSD and was much higher than in children living with parents and the relationship between children's and parent's PTSD symptoms was independent to the child and parent's socio-demographic characteristics and family functioning level. This finding confirms that children's reaction to trauma and experience of mental stress is influenced by parental psychopathology, which is lined up with several previous studies explaining the role of parents in children psychopathology [7, 21]. Our study provided additional support to the attachment theory explaining that children do well if parents are emotionally stable and provide security [22]. Emotionally available and stable parents provide the attachment of security, which acts as a protective shield against multiple bad outcomes [23].

In addition, it appears from several studies, females have fewer appraisals to a threat. Mother with PTSD symptoms is expected to have increased emotional regulation burden for both herself as well as her child [24]. As mother tries to restore the sense of safety to

both, herself and her child, the mother with PTSD symptoms or depressed mother may exhibit a lack of control over environment and may show more withdrawal that may create trouble while interacting with their children [25]. This reduces the maternal engagement and availability of mother with a child, which may result in a lack of support for the child's emotional and behavioral problem. Thus, it supports that mother's PTSD symptoms are likely to have strong association with the severity of PTSD symptoms in children.

Our result also extends the understanding of the association of paternal PTSD symptoms with PTSD symptoms in the children. Father is considered as a protector in Nepalese culture, and his role becomes salient in life threat and when there occur any adverse situations in the family. Their attachments with the children provide the sense of security. Father's mental-health problems are more important in creating the unhealthy family environment of child which in turn makes the child vulnerable to distress and anxiety disorder [15]. Moreover, father with PTSD symptomatology leads to other problems like increased arguments and physical punishment that may lead to the development of PTSD symptomatology in children [26]. Supporting this statement, we found that paternal PTSD symptoms were significantly associatedwith severe PTSD symptoms in the children.

Our result underlines the effect of both parents having PTSD symptoms on severity of PTSD symptoms among the children. Children with both parents with PTSD symptoms were strikingly at higher risk of having severe PTSD symptoms. Collective trauma [27] may be a possible explanation of this significant association. After a traumatic event witnessed by a bunch of people, society or family can stir up with similar sentiments, which often result in a shift of trauma among those people, society or family [28]. Parents are the protective core of the children who keep children away from threat, harm and stressful situation. Challenges to manage the stressful situations and to minimize the threat to their children often leave parents with sense of negative emotions and feeling of guilt, which induce PTSD symptoms among parents and such negative emotions in both parents serve to maintain symptoms among children [6]. There are some other existing studies explaining the other way round about sharing of trauma experience by the parents after the exposure of children with severe trauma [29,30]. However, it is unclear whether parent's PTSD symptoms can impact on their child's mental health or exposure of children in traumatic situation increases parental PTSD symptoms.

It is plausible that a number of limitations might have influenced the results obtained. To begin with the study design, cross-sectional study design limits the establishment of the temporal relationship. Limited research and explanation about the direction of shared trauma limit the understanding of the relationship between parental and children PTSD symptoms. Study limits the investigation of the variables such as child-parent relationship, severity of trauma exposure by parents which may have potential influence in the relationship of parental PTSD symptoms and PTSD symptoms among children. There might be potential recall bias in reviving past traumatic experience but its potential was minimized by interviewing with a professional psychological counselor.

Notwithstanding the limitations, study has gone some way towards enhancing our understanding of the parental PTSD symptoms in effecting the PTSD symptoms among children. Our result shows the significant association of the parental PTSD symptoms with children PTSD symptoms and suggests that the mental health care provider and policy maker should assess the status of parental PTSD while making an intervention for the children. As studies have explained that many parents do not seek help after a traumatic experience, different screening approaches or treatment models for intervention are recommended [31,32].

Study also confirms the need of careful evaluation of both father and mother PTSD symptomatology. Children with their both parents having PTSD symptoms should be given a priority while making an intervention. The study has explained an important aspect of parental stress in determining the severity of stress reactions in children. On a wider level,

research is also needed to determine the direction of relationship between parental PTSD symptoms and children answering whether children PTSD symptoms may traumatize parents and threat to oneself or parents with PTSD symptoms are unable in maintain emotional availability and lead to increase the sense of insecurity among children resulting PTSD symptoms.

Conflict of Interest

Authors declare no conflict of interest.

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