

Post Traumatic Stress Disorder (PTSD) and It's Associated Factors among Secondary Level Students in Chautara Municipality, Nepal

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ABSTRACT

Children and adolescents are more prone to developing Post Traumatic Stress Disorders. Objective of this study was to assess the magnitude of Post Traumatic Stress Disorder and associated factors among secondary level students in Chautara Municipality, Nepal. A cross sectional study was conducted among 249 secondary level students. Data were collected using population proportionate sampling method along with UCLA PTSD RI with 31 questionnaires DSM V tool was used to assess the PTSD symptom. Questionnaire was design to obtain socio demographic factor and earthquake exposure. Factor associated with PTSD development was assessed through chi square and binary logistic regression. Mean age of respondents was 15.42±1.079 years. Majority of them were middle adolescents (74.3%) and 25.7 percent were early adolescents. More than half of respondents were female 54.6 percent. This study revealed that PTSD was found to be among 27(10.8%) respondents and dissociative subtype PTSD was among 14(5.6%) respondents. Age was significantly associated with development of PTSD. Earthquake exposures like financial constraints after earthquake food deficiency displacement due to earthquake was the major factors associated with PTSD development. Psychological tutorship for PTSD is found to be protective factors for PTSD development in adolescents. PTSD was quite high among the secondary level students after six month of earthquake in Chautara municipality, Sindupalchowk district and psychological tutorship and humanitarian program for traumatized students could prevent development of PTSD.

Key words: Post traumatic stress disorder; Associated factors; Earthquake; Secondary levels students

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INTRODUCTION:

Post Traumatic Stress Disorder (PTSD) is a psychological reaction that occurs after experiencing or witnessing a highly stressing events (as Wartime combat, physical violence, or a disaster) outside the range of the normal human experience and that is usually characterized by depression, anxiety, flashbacks, recurrent nightmares, and avoidance of reminders of the event.¹ Many people who go through traumatic events have difficulty in adjusting and coping for a while, but they don't have PTSD with time and good self-care, they usually get better. If the symptoms persist for months or even years interfere with the functioning of daily lifestyle is termed as PTSD. Getting effective treatment after PTSD symptoms can be critical to reduce symptoms and improve function.² Latest version of PTSD testing tools (DSM-5) was launched on 2013 with 31 self-administrated questions. PTSD moved from the class of anxiety disorders into a new class of "trauma and stressor-related disorders."³

On 25th April 2015, an earthquake with magnitude measuring 7.8 on Richter scale occurred on Barpak, Gorkha mid between Kathmandu and Pokhara city, Nepal. Nine thousand people died and 23,000 were injured, many more displaced. It resulted in more than 300 aftershocks.^{4,5} Sindupalchowk is one of the worst-affected districts due to the earthquake that took place on the 25th April. While the initial epicenter of the earthquake was in Gorkha district, the highest magnitude

(6.7M) aftershock took place in Sindhupalchowk district. Due to the event 3057 people died, 860 were injured and 3000 people remain unaccounted for and almost 63,885 houses are severely and 2,751 houses are moderately damaged.⁶

METHODS

A cross sectional descriptive study was conducted among 249 secondary level students after six month of earthquake in Chautara municipality, Sindupalchowk district from July 2015 to December 2015. A research proposal including research instrument was submitted to Nepal Health Research Council and District Education office Sindhupalchowk to obtain permission for the study. All eight secondary schools of Chautara municipality were included in the study. Informed consent was obtained from parents and respondents to cooperate with the study. The participants were 249 secondary level students who had experienced from April earthquake.

UCLA PTSD reaction index with 31 self administered questionnaire was used for assessing PTSD symptoms. A complete bio data of each student was obtained with the aid of questionnaire designed to include age, sex, ethnic group, number of siblings and earthquake exposure. Self-administered questionnaires were distributed to the students and were asked to fill up in school. Each student was briefly

instructed about the questionnaire and separate arrangement was provided for each of them to fulfill the form. Data were entered in EPI-Data version 3 and was imported to SPSS V16 for analysis. The proportion of PTSD was calculated by using the criteria provided by DSM5 and similarly, the association of variables with PTSD was find out by using chi- square and binary logistic regression.

RESULTS

Socio-demographic characteristics of students

Of the total 249 students 185 (74.3%) were middle adolescents and 185 (25.7%) were early adolescents with mean age of 15.42±1.079 years. The total number of male and female were 136 (54.6%) and 113(45.6%) respectively. About one third (33.7%) respondents belong to upper caste group followed by 31.7 percent Disadvantaged Janajatis, 27.7 percent relatively advantaged Janajatis percent, 6.0 percent Dalit and 2.0 percent religious minority group. Most of respondent (92.0%) have one or more siblings.

Table 1: Socio-demographic characteristics

Characteristics	No. of students (N=249)	Percent
Mean Age± SD=15±1.079		
Age Category		
Early adolescents	64	25.7
Middle Adolescents	185	74.3
Mean Age± SD=15±1.079		
Sex		
Male	113	45.4
Female	136	54.6
Caste		
Dalit	15	6.0
Disadvantaged Janajatis	79	31.7
Relatively Advantaged Janajatis	69	27.7
Religious Minorities	2	0.8
Upper Caste Group	85	33.7
Types of School		
Public	243	97.6
Private	6	2.4
Number of Siblings		
None	20	8.0
One or More	229	92.0

Earthquake exposures

Among 249 students 240 (96.4%) houses were damaged during earthquake of which 85.0 percent of them had structural damage while remaining 15.6 percent had semi structural damaged. Of all students, 215(86.0%) witnessed injury during earthquake, 186(74.7%) of students have economical difficulty after earthquake, 133(53.4%) loss their neighbor, 125(50.2%) witness burry and 104 (41.8%) respondents witness death. Whereas, 107 (43.5%) students

lost their family/relatives, 95(38.2%) had no food security after earthquake, (31.3%) loss their friends and (30.5%) were displaced due to earthquake. Only 29(11.6%) students were injured and 16(6.4%) percent were buried during earthquake. One third of students 92(36.9%) have psychological tutorship for PTSD and 157 (63.1%) have no access to such tutorship.

Table 2: earthquake exposure

Characteristics	No. of students (N=249)	Percent
House Damaged	240	96.4
Witness injury	215	86.0
Economic difficulty	186	74.7
Loss of Neighbor	133	53.4
Witness burry	125	50.2
Loss of family/relatives	107	43.0
Witness death	104	41.85
No Abundance of Food	95	38.2
Loss of friends	78	31.3
Displacement due to earthquake	76	30.5
Injured	29	11.6
Buried	14	5.6%
Psychological tutorship	92	36.9%

PTSD criteria and diagnosis

Out of 249 respondents 161 (64.4%) had met the symptoms of Re-experiencing, whereas 143(57.4 %) of student met symptoms avoidance, 148(59.4%) of respondents met category of Negative cognition and mood, 76(30.5%) of student met symptoms of Arousal. An entire respondents had symptoms present for more than one month. Clinically significant distress was met by 93(37.3%) of total participants. One out of every ten respondents 27(10.8) has PTSD and 14(5.6 %) of them have co morbid disorder with dissociative subtype.

Table 3: PTSD criteria and diagnosis

Characteristics	No. of students (N=240)	Percent
Re-experiencing	161	64.7
Avoidance	143	57.4
Negative Cognition and Mood	148	59.4
Arousal	76	30.5
Clinical significant distress	93	37.3
Dissociative subtype	176	70.7
PTSD	27	10.8
PTSD with dissociative subtype	14	5.6

Association of PTSD with different factors

It was found that those early adolescents are 2.615(CI=1.52-5.3939.P=0.018) times greater in risk than middle adolescent respondents and the respondents who have economic difficulty in their homes after earthquake are 0.855(CI=0.806-0.907, P=0.001) times greater at risk than who don't have difficulty. Whereas respondent who don't have abundance of food are 2.633(CI=1.165-5.950, p=0.017) times higher at risk of developing PTSD then who have abundance of food. Likewise, respondent who have no asses to psychological tutorship are 2.836(CI=1.035-7.768, p=0.036)times more

likely to develop PTSD then who have some psychological tutorship about PTSD and respondent who were displaced after earthquake were 2.344(CI=1.043-5.265,p=0.039) times at higher risk of developing PTSD

Table 4: association of PTSD with different factors

Variables	Category	Unadjusted OR	p-value
Age	Early adolescents	2.615(1.52- 5.3939)	0.018*
	Middle adolescents	1	
Economic Difficulty	No	1	0.001*
	Yes	0.855(0.806-0.907)	
Abundance of food	No	2.633 (1.165-5.950)	0.017*
	Yes	1	
Psychological Tutorship	No	2.836(1.035-7.768)	0.036*
	Yes	1	
Displacement	No	1	0.039*
	Yes	2.344(1.043-5.265)	

DISCUSSION

The prevalence of PTSD in the present study was 10.8 percent and dissociative subtype PTSD was prevalent among 5.6 percent which is almost equal to that of Wenchuan earthquake after six months (9.7%).⁷ Similar studies conducted in China, Taiwan, Turkey, Greece, Haiti demonstrated prevalence range from 3.8 percent to 42.02 percent.⁷⁻¹⁵

The difference in prevalence may be due to the tool as other study used DSM IV which was more subjective in nature and for this study DSM V an updated version have added three new symptoms: criteria D (Negative alteration on cognition and mood), criteria E (alteration in arousal and reactivity) and criteria A2 (requiring fear or helplessness or horror right after trauma) to improve diagnostic accuracy. It is also notable that in DSM IV diagnose of PTSD was performed by total score but for DSM V every symptoms criteria must be present in respondents. This may have result in lower prevalence of PTSD in this study. The factors like magnitude of earthquake, genetic makeup and period of time after earthquake may also have contributed to the difference occurrence of PTSD.¹⁶

REFERENCES

1. Post traumatic stress disorder: Merriam webster com, (20 Dec. 2015). Available from: <http://www.merriam-webster.com/medical/post-traumatic-stress-disorder>.
2. Mayo clinic, org. Post traumatic stress disorder (PTSD): Mayo clinic,[15 July 2015]. Available from: <http://www.mayoclinic.org/diseases-conditions/post-traumatic-stress-disorder/basics/definition/con-20022540>
3. Elhai JD, Layne CM, Steinberg AM, Brymer MJ, Briggs EC, Ostrowski SA, Pynoos RS. Psychometric properties of the UCLA PTSD reaction index. Journal of traumatic stress, 2013 Feb 1; 26(1):10-8. doi:10.1002/jts.21755
4. Fink MD, Harris W, Kessler R, Lanius R, Loewenstein RJ, Putnam FW, Warshaw CL. Report of the American psychiatric association task force on the biopsychosocial consequences of childhood violence.
5. United State geological survey of Lumjung, Nepal,[2015 Oct].Available from http://earthquake.usgs.gov/Earthquakes/event-page/us2000292y/general_summary
6. UN Office for the coordination of humanitarian affairs of Nepal. Earthquake; district: Profile-Sindhupalchok, [updated 2015 may;cited2015 Oct].Available from <http://reliefweb.int/report/nepal/nepal-earthquake-district-profile-sindhupalchok-08052015>.
7. Zhang Z, Ran MS, Li YJ, Ou JI, Gong RR, Li RH, Prevalence of post-traumatic stress disorder among adolescents after

This study reveals that age is significantly associated with PTSD. Early adolescents have three times higher at risk of developing PTSD than those who were the middle Adolescents. Whereas other studies conducted in Turkey, China, Greece, Taiwan and Haiti showed no significant association between age and PTSD.⁷⁻¹⁵

The findings showed that there was no significant association of PTSD with Social Support however there is significant association between Psychological Tutorship and PTSD(p=0.036). It shows that respondents who have no psychological tutorship are 2.83 times more likely to develop PTSD than those who had Psychological tutorship. This finding is concurrent with similar study carried out among adolescents of China after Wenchuan earthquake.⁷ Overall, this study shows 10.8 percent of PTSD after six month of earthquake which is similar to longitudinal study conducted among adolescent after six month of Wenchuan earthquake (9.7%).⁷ Other studies conducted after 1, 2 and 3 years of earthquake showed 14, 36 and 59 percent respectively.

CONCLUSION

Eleven percent of the secondary level students of Chautara Municipality had Post Traumatic Stress Disorder symptoms (PTSD) of which half of them had dissociative subtype PTSD. Younger adolescents were more prone to development of PTSD then older one. Earthquake exposures like financial constraints after earthquake, food deficiency, displacement due to earthquake were the major factors associated with the development of PTSD. Psychological tutorship for PTSD is found to be protective factor for PTSD development in adolescents. Appropriate psychological tutorship should be provided to every secondary level student with trauma to prevent the development of PTSD. Screenings for PTSD and appropriate treatment facility should be provided to traumatized students.

- the Wenchuan earthquake in China. *Psychological Medicine*, 2012; 42(08):1687-1693
8. Aydil B. Post-traumatic stress disorder in turkish child and adolescent. *Child and Adolescence Mental Health*, 2008; 13(3):134-139.
 9. Dell'Oso L, Carmassi C, Stratta C, Massimetti G, Akiskal KK, Akiskal HS, et al. Full and partial ptsd among young adult survivors: gender differences. *Font Psychaitry*, 2011 ;131(3):79–83.
 10. Goenjian AK, Walling D, Steinberg AM, Karayan I, Psy D, Najarian LM, et al. Prospective study of posttraumatic stress and depressive reactions among treated and untreated adolescents. *Am J*, 200; 162:12. Available from :Am J <http://ajp.psychiatryonline.org> *Psychiatry*, 162:12, December 2005
 11. Roussos A, Goenjian AK, Steinberg A M, Sotiropoulou C, Kakaki M, Kabakos C, et al. Posttraumatic stress and depressive reactions among children and adolescents in Ano Liosia, Greece. *Am J Psychiatry*, 2005; 162:530–537
 12. Derivois D , Mérisier G, Cénat G, Jude M, Castlot V. Symptoms of posttraumatic stress disorder and social support among children and adolescents. *J Loss and Trauma*, 2014;19(3):202-212.
 13. Hsu CC, Chong MY, Yang P, Yen CF, Posttraumatic stress disorder among adolescent earthquake victims in Taiwan. *J Am Acad Child Adolesc Psychiatry*, 2002; 41(7):875-881.
 14. Fu Y, Chen Y, Jin Wang J, Tang X, He J, Jiao M, Yu C, You G, et al. Analysis of prevalence of PTSD and its influencing factors among college students after the Wenchuan earthquake. *Child Adolesc Ment Health*, 2013; 7:1
 15. Silvestre G, Anacreon P, Theodore M, Silvestre E, Dubus E. Risk factors for posttraumatic stress disorder in haitian students. *Sci Res, Psycholog*, 2014; 5:849-858 Available from <http://www.scirp.org/journal/psych> <http://dx.doi.org/10.4236/psych.2014.58096>
 16. Friedman MJ. Finalizing PTSD in DSM 5: Getting here from there and where to go next. *Journal of Traumatic Stress*, 2013 Oct 1; 26(5):548-56.