

BEHAVIORAL PROBLEMS AMONG SCHOOL GOING ADOLESCENTS IN EASTERN DEVELOPMENT REGION OF NEPAL

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ABSTRACT

Introduction

The public health relevance of mental health conditions including behavioural problems in children and adolescents has been a growing concern over the past decades. There are negligible studies found in mental health domains of adolescents in developing countries; studies with regional or national coverage are lacking in Nepal. Therefore, present study has been designed to explore the magnitude and risk factors of behavioral disorders among adolescents.

Objective

The objective of this study is to examine the prevalence of behavioral disorders and its determinants among school going adolescence in Eastern Development Region of Nepal.

Methodology

The study adopts analytical cross-sectional design with sample size 1500 involving 11 to 17 year school going adolescents and carried out in Eastern Development Region of Nepal during August to December 2016. Multistage probability sampling technique was used to draw the sample and validated self-report SDQ was used to estimate the behavioral problems. Ethical approval was taken from ERB of Nepal Health Research Council. Written informed consent was taken from each participant before collecting the information. Collected information were entered using Epi Data software and processed to SPSS version 16 for analysis. Both bivariate and multivariate analysis were carried out.

Results

The prevalence of total (overall) behavioral problem was found among 35.0 % adolescents. While classifying, 13.3% were suffering from emotional disorder, 11.20% from conduct problem, 7.2% from hyperactivity/inattention, 4.9% from peer relationship problem and 2.1% from pro-social activities. In multivariate analysis, female adolescents, adolescents of uneducated or less educated parents (less than 10+2), residing in mountain ecological belt and adolescents without parents (dead or separated) were found positively associated with behavioral disorders.

Conclusion

Total behavioral problem was found among 35.0% adolescents. adolescents of less educated parents, female sex, Mountain ecological belt and those without parents were more vulnerable to behavioral problem. Therefore, parental care seems to be very much essential to reduce the behavioural problems among children.

KEY WORDS

Behavioural problem, hyper activity, peer problem, mental illness, adolescents



INTRODUCTION

Mental disorders comprise a broad range of problems, with different symptoms. However, they are generally characterized by some combination of abnormal thoughts, emotions, behaviour and relationships with others (WHO, 2017).¹ In medical term, a mental disorder is a syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation or behaviour that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning. Mental disorders are usually associated with significant distress in social, occupational, or other important activities (Eric R., 2013).² Hence, mental disorder refers to a wide range of mental health conditions - disorders that affect individual's mood, thinking and behavior. Mental health disorders among children are described as "serious deprivation from expected cognitive, social, and emotional development" (CDC, 2013).³

The public health relevance of mental health conditions in children and adolescents has been a growing concern over the past decades. Evidences have shown that these conditions often continue into adulthood (Merikan gas KR, 2009).⁴ Due to lack of sufficient awareness, mental health is often, hidden and neglected in the family and society, until it reaches in uncontrollable level, especially in developing world. If the problem is not addressed in time the consequences may be serious for children and their family and it affects future productivity and potentiality.

Up to 20% of children and adolescents suffer from a disabling mental illness globally; and that up to 50% of all adult mental disorders have their onset in adolescence (Eric R., 2013).² According to the World Health Organization (WHO, 2017),¹ mental health disorders are one of the leading causes of disability worldwide. Three of ten leading causes of disability in people between ages 15 to 44 years are mental disorders. Many studies have shown that most adulthood mental disorders begin in childhood and adolescence (Murrey C., e, 2002).⁵

The prevalence of child psychiatric disorder in the developed world is 10-20%, but in the developing world, where children and adolescents make up a higher proportion of the population, the prevalence may be higher. Relatively little is known about the extent to which social risk factors identified in the developed world also apply in the developing world (Fleitlich, B and Goodman, R., 2001).⁶ A study conducted in Chandigarh India found 30% prevalence of behavioural and emotional problems among adolescents with girls exceeding boys in all age groups (Pathak R, et al. 2011).⁷ A cross-sectional study conducted by Rimal HS et al. in Morang district of Nepal between 11-17 years school going adolescents found 18.6% total mental disorders, 24.5% emotional problems and 22% peer relationship problem and the gender difference was also significant statistically (Rimal HS, e., 2014).⁸

Though the public health concern of mental disorders

among children and adolescents is growing, there are negligible studies found in this issue in developing countries including Nepal. Moreover, studies which have been conducted in Nepal have limited sample size and very small coverage; no studies with regional or national coverage are found. Therefore, the relevance of present study is felt of great importance. The purpose of the study is to examine the prevalence of mental health disorders and its determinants among school going adolescence in Eastern Development Region of Nepal.

METHODOLOGY

Analytical cross-sectional study design and quantitative approach of data collection has been adopted in this study. The study was carried out between 1st August to 31st December 2016. In total 20 schools were selected randomly among 7885 schools from Eastern Development Region of Nepal by considering ecological belts. School going adolescents (both girls and boys) ages between 11 to 17 years were studied. The required 1500 sample size was calculated based on the finding of a study conducted in Biratnagar city, Nepal⁸ by using formulae $n = Z^2PQ/d^2$ and design effect 2.

The multistage (three stage) cluster sampling technique was adopted to draw the sample from population. In the first stage, five districts were selected by using Simple Random Sampling (SRS) technique considering ecological belts (1 from Mountain, 2 from Hill and two from Terai). In second stage, four schools from each district were selected randomly, and in third stage participants were selected by using simple random sampling technique. Equal sample size was taken from each district i.e.300. Standard and valid Strengths and Difficulties Questionnaire (SDQ) was used to collect the behavioural problems related information and socio-demographic information were also collected by using the standard pre-designed questionnaire. The individual data were entered into Microsoft computer using EpiData version 3.1 software and processed further to the SPSS version 16 for analysis. Both bivariate and multivariate analysis were carried out. Chi-square test is used to test association between variables as a part of bivariate analysis and logistic regression analysis is used to identify the risk factors in multivariate analysis. Statistical test were done at 95% confidence interval. Written informed consent was taken from each participants and concerned school authority before data collection. The ethical approval was taken from Ethical Review Board of Nepal Health Research Council, Kathmandu.

RESULTS

Table 1 reveals the socio-demographic information of the study subjects. Among 1500 school going adolescents, 56% respondents were female and the mean age was 14.78 years with SD 1.5.

Similarly, three in every five (59.1%) respondents were 14



years and older and higher proportion of the respondents were belonged to Janajati/Adibasi ethnic group (39.9%) followed by hill Brahmin/Chhetri (30.5%)

Sixty three percent respondents were residing in nuclear family structure and about 57% respondents had low property index in family. As the equal sample size was taken from each district, 40 % respondents were from each

Table 1: Socio-demographic Characteristics of Respondents

Variables		Frequency (n=1500)	Percentage (%)
Age	11-14 yrs	614	40.9
	>14yrs	886	59.1
	Mean±SD	14.78±1.53	-
Sex	Male	663	44.2
	Female	837	55.8
Ethnicity	Hill Upper Caste	457	30.5
	Terai Upper caste	305	20.3
	Janjati/Adibasi	599	39.9
	Dalits	114	7.6
	Others	25	1.7
Type of Family	Nuclear	951	63.4
	Joint	549	36.6
Property index	Low	851	56.70
	Middle	284	18.90
	High	364	24.30
	Terai	600	40.0
Ecological Belt	Hill	600	40.0
	Mountain	300	20.0

The educational status of respondents' parents was found poor. However, fathers had better educational status as compared to their mothers. More than 26% mothers had no education, and it was around 10% for fathers.

About one third (32.5%) respondents reported that their fathers had some secondary level education in contrast to 26.3% mothers. Only about 20% fathers and 9% percent had higher education (10+2 and above) (Table 2).

Table 2: Distribution of respondents by their Parents' Education

Variables	Frequency (n=1500)	Percentage (%)
Father's Education		
No education	161	10.7
Primary	292	19.5
Secondary	487	32.5
SLC Pass	237	15.8
Higher Secondary	191	12.7
Bachelors Plus	100	6.7
Not responded	32	2.1
Mother's Education		
No Education	402	26.8
Primary	377	25.1
Secondary	395	26.3
SLC Pass	162	10.8
Higher Sec	101	6.7
Bachelors Plus	36	2.4
Not responded	26	1.7

Some questions related to environment for adolescents' psychological support had been asked. About 70 percent adolescents were currently living with both parents and 93.3% respondents were belonging to both parents (not separated/died). Most of them (88.30%) reported that they were receiving good parental care. Majority (59.9%) of the school going adolescents were getting positive environment in the school and only 1 in every 8 adolescent was involving in regular outdoor activities/games and sports (Table 3).

Table 3: Supportive Environment at Home and School for the Adolescents

Variables		Frequency (n=1500)	Percentage (%)
Parent's Status	Belong Both parents	1,400	93.30
	Only Father	25	1.70
	Only Mother	51	3.40
Parent's Care	Step Mother/Father	23	1.50
	Good	1,324	88.30
	Normal	161	10.70
School Environment	Bad	15	1.00
	Positive	924	61.60
	Normal	553	36.90
Outdoor Activities	Negative	23	1.50
	Always	178	11.90
	Mostly	279	18.60
	Sometimes	898	59.90
	Rarely	145	9.70

Among 1500 adolescents, 35% had abnormal behavioural difficulties and another 30.7% were in boarder line indicating vulnerability of abnormal difficulties in future (Table 4). The mental health difficulties (behavioural problem) as assessed by SDQ have been divided into five major areas: emotion, conduct, hyperactivity, peer relationship and pro-social activity. While segregating individual difficulties, 13.3% had emotional difficulties, 11.20% had difficulties related to their conduct, 7.2% had hyperactivity, 4.9% had difficulties in peer relationship and only 2.1% had pro-social activities and additional significant proportion of adolescents also had boarder line difficulties in various behavioural aspects (Table 4).

Table 4: Distribution of respondents by mental health difficulties

Characteristics		Frequency	Percentage
Emotions	Normal	1,153	76.90
	Borderline	147	9.80
	Abnormal	200	13.30
Conduct	Normal	1,159	77.30
	Borderline	173	11.50
	Abnormal	168	11.20
Hyperactivity	Normal	1,226	81.70
	Borderline	166	11.10
	Abnormal	108	7.20
Peer Relationship	Normal	1,188	79.20
	Borderline	238	15.90
	Abnormal	74	4.90
Pro-social Activities	Normal	1,403	93.50
	Borderline	66	4.40
	Abnormal	31	2.10
Total difficulties (Overall)	Normal	515	34.30
	Boarder line	460	30.70
	Abnormal	525	35.00



The significance has been tested using Pearson's chi-square test of association. The 95% confidence interval is considered. Table 5 reveals the cross-analysis of total (overall) behavioural difficulties with various socio-demographic factors. The age, sex, ethnicity, type of family, ecological belt of residence, currently living with, parental status, parents' care, school environment (as rated by respondent), involvement in games and sports (outdoor activity), and parents education were the variables considered.

Table 5: Distribution of respondents with total mental disorders by socio-demographic characteristics

Socio-Demographic Variables		Normal N (%)	Total disorders		Chi-square and p value
			Boarder Line N (%)	Abnormal N (%)	
Age	11 - 14 yrs	231(37.6)	184(30.0)	199(32.4)	$\chi^2= 5.43$
	>14 yrs	284 (32.1)	276(31.2)	326(36.8)	P=.066
Sex	Male	264(39.8)	212 (32.0)	187 (28.2)	$\chi^2=26.75$
	Female	251(30.0)	248(29.6)	338 (40.4)	P<.001
Ethnicity	Hill upper caste	157 (34.4)	153 (33.5)	147(32.2)	$\chi^2= 10.75$ P=0.216
	Terai upper caste	122 (40.0)	81 (26.6)	102 (33.4)	
	Janjati/adhibasi	188 (31.4)	185 (30.9)	226(37.7)	
	Dalits	38 (33.3)	33 (28.9)	43(37.7)	
	Others	10 (40.0)	8 (32.0)	7 (28.0)	
Type of family	Nuclear	334 (35.1)	273(28.7)	344 (36.2)	$\chi^2= 4.75$, p=0.093
	Joint	181 (33.0)	187 (34.1)	181 (33.0)	
Parents' status	Both parents	491 (35.1)	435 (31.1)	474(33.9)	$\chi^2=18.05$ p=0.006
	Only father	7(28.0)	6(24.0)	12(48.0)	
	Only mother	14(27.5)	15(29.4)	22(43.1)	
	Step parents/none	3(12.5)	4(16.7)	17(70.8)	
Parents' care	Good	458(34.6)	413(31.2)	453(34.2)	$\chi^2=8.05$ p= 0.091
	Normal	54(33.8)	45(28.0)	62(38.5)	
	Bad	3(20.0)	2(13.3)	10(66.7)	
School Environment	Positive	322(34.8)	282(30.5)	320(34.6)	$\chi^2= 3.22$ p=0.522
	Normal	187(33.8)	173(31.3)	193(34.9)	
	Negative	6(26.1)	5(21.7)	12(52.2)	
Ecological belt	Terai	221(36.8)	185 (30.8)	194(32.3)	$\chi^2=23.59$, p<0.001
	Hill	224 (37.3)	179 (29.8)	197 (32.8)	
	Mountain	70 (23.3)	96 (32.0)	134 (44.7)	
	First	178(34.7)	142(27.7)	193(37.6)	
Property Index	Second	162(33.1)	143(29.2)	184(37.6)	$\chi^2=15.37$ p=0.018
	Third	95(31.9)	106(35.6)	97(32.6)	
	Forth	80(40.0)	69(34.5)	51(25.5)	

While analysing overall disorders, among various socio-demographic factors, age, sex, parent's status, parents' care, ecological belt, and property index of the family were significantly associated with the behavioural disorders of the adolescents (Table 5).

Table 5a: Distribution of respondents with total mental disorders by Parent's Characteristics

Variables		Normal N (%)	Total Difficulties		Chi-Square and P value
			Boarder line N (%)	Abnormal N (%)	
Father's Education	Not Responded	9 (28.1)	11 (34.4)	12 (37.5)	$\chi^2=16.15$ p=0.184
	No education	48 (29.8)	47 (29.2)	66 (41.0)	
	Primary	97 (33.2)	81 (27.7)	114 (39.0)	
	Secondary	160 (32.9)	153(31.4)	174 (35.7)	
	SLC Pass	86 (36.3)	77 (32.5)	74 (31.2)	
	Higher Secondary	71 (37.2)	57 (29.8)	63 (33.0)	
	Bachelors Plus	44 (44.0)	34 (34.0)	22 (22.0)	
Mother's Education	Not Responded	7 (26.9)	9 (34.6)	10 (38.5)	$\chi^2=6.61$ P=0.882
	No Education	129 (32.1)	124 (30.8)	149 (37.1)	
	Primary	132 (35.0)	109 (28.9)	136 (36.1)	
	Secondary	137 (34.7)	123 (31.1)	135 (34.2)	
	SLC Pass	61 (37.7)	47 (29.0)	54(33.3)	
	Higher Sec	35 (34.7)	33 (32.7)	33 (32.7)	
	Bachelors Plus	13 (36.1)	15(41.7)	8(22.2)	
Total		515(34.3)	460 (30.7)	525 (35.0)	-

Multivariate Analysis has been done to know the risk factors for behavioural disorders among the children. Among 15 variables: age, sex, family type, father's and mother's education, school environment, ecological belt, parent's status, parent's care, living with were played in logistic regression, only sex, ecological belt, parents' education (father) and parent's belongingness status were found significantly associated with behavioural disorders. Female adolescents, adolescents with less educated parents, who were residing in Mountain belt and who were living with step mother/father or living without parents were more vulnerable to behavioural disorders than their counterparts.

Table 6: Reason for vaccination

Determinants	N	OR	Binary Logistic Regression	
			AOR	CI
Sex				
Male	663	1.00	1.00	Ref#
Female	837	1.75	1.69	1.35 – 2.11***
Ecological Belt				
Terai	600	1.00	1.00	Ref#
Hill	600	0.95	1.10	0.86 – 1.42
Mountain	300	1.62	1.79	1.34 – 2.41***
Parents Status				
Both Parents	1400	1.00	1.00	Ref#
Only Father	25	2.08	1.80	0.79 – 4.11
Only Mother	51	1.34	1.39	0.75 – 2.58
Step Parents/None	24	3.37	4.62	1.88 – 11.38***
Father's Education				
No Education	158	1.77	2.53	1.40-4.57**
Primary	287	1.70	2.07	1.20-3.57**
Secondary	485	1.48	1.83	1.09-3.09*
SLC	235	1.17	1.54	0.88-2.70
Higher Secondary	190	1.51	1.65	0.93-2.92
Bachelor Plus	100	1.00	1.00	Ref#

*significant at 95% CI, ** significant at 99%CI, *** significant at 99.9%CI

The females had 1.69 times higher odds to get behavioural abnormality (CI: 1.41-2.16, 95%, p<0.001) than males. Similarly, adolescents from Mountain Ecological Belt had 1.79 times higher odds than those from Terai (AOR 1.79, 95%, p<0.001). The adolescents from Hill ecological belt had comparatively lower risk of getting suffered from behavioural disorders than other ecological belts.

The parent's status had played a vital role in the behavioural status of their children. Adolescents without parents or with step parents were found at higher risk of behavioural disorders; the odds of adolescents without parents had 4.62 times higher (CI: 1.88-11.38, 95%, p<0.001) to get disorders than those living with both parents. Fathers' education also negatively associated with behavioural problems. Adolescents with not educated fathers were 2.53 (CI: 1.20-3.57, 95%, p<0.01) times more likely and with father's primary education were 2.07 (CI: 1.20- 3.57, 95%, p<0.01) times more likely to have behavioural problem as compared to adolescents with father's education bachelors and above (Table 6).



DISCUSSION

The public health relevance of mental health conditions in children and adolescents has been a growing concern over the past decades. Evidences have shown that these conditions often continue into adulthood and up to 50% of all adult behavioural disorders have their onset in adolescence (Eric R, 2013 and Merikangas, 2009)^{2,4}. Though the problem is emerging, sufficient studies have not been conducted yet. Present study has used self rated Strength and Difficulties Questionnaire (SDQ) with impact supplement (two sided version) to rate the mental health disorders among 11 to 17 years old school going adolescents. In this study about 35% adolescent found with anyone mental disorders (behavioral abnormalities). While analyzing different domains, 13.3% were suffering from emotional disorder, 11.20% from conduct related disorder, 7.2% from hyperactivity/inattention, 4.9% from difficulties in peer relationship and 2.1% had pro-social activities. Additional significant numbers of adolescents were in boarder line in various mental health domains. A research conducted by Bhola P et al (2016)⁹ among 1087 pre-university students in Bangalore, India using the self-reported Strengths and Difficulties Questionnaire (SDQ) found abnormal total difficulties among 10.1% adolescents, with 9% at risk for emotional symptoms, 13% for conduct problems, 12.6% for hyperactivity/inattention and 9.4% for peer problems. This finding is similar in many aspects with present finding; however, present finding found higher prevalence of mental difficulties among adolescents, this could be due to increasing junk food pattern and growing individualism. Another study conducted by Antilola A, et al found the prevalence of self-reported mental health problems among 10.5% (ranging, 5.8-15) adolescents with conduct and emotional problems being the most prevalent. A cross-sectional study conducted by Rimal HS in Biratnagar, Nepal⁸ also found abnormal total difficulties among 18.6% adolescents with 24% emotional difficulties. This finding keeps much similarity with present finding. Syed EU et al¹⁰ conducted a cross sectional study on Prevalence of emotional and behavioural problems among primary school children in Karachi, Pakistan--multi informant survey among 1488 parents and teachers using Strengths and Difficulties Questionnaire (SDQ). Where the parents rated 34.4% of children as falling under the "abnormal" category, slightly higher estimates 35.8% were reported by the teachers. The findings suggest a striking difference between the informants' ratings as well as gender wise difference in prevalence of common child mental health problems. Another cross-sectional study conducted by Hackett R et al (1999)¹¹ reported that 18% of pupils found abnormal on the SDQ as rated by teachers. The study by Reinholdt-Dunne MLet al¹² found that 10.8% of children had concerns regarding emotional difficulties and that significantly more

girls than boys reported this concern. This finding keeps some similarity with present finding as females were suffering more than males in total behavioral problems and also property index of family is associated with mental health problems of children.

Age, sex, parent's status, parents' care, ecological belt, and property index of the family were significantly associated with total mental abnormality in bi-variate analysis. Multivariate analysis was also done to know the risk factors for total mental health disorders among the adolescents. Among 15 variables adjusted only sex, ecological belt, parent's status and father's education were found significantly associated with total disorders. Adolescents from female sex, who were residing in Mountain ecological belt, who were with step mother/father (without parents) and without educated fathers were much more vulnerable of suffering from the behavioural disorders than their counterparts. The parent's living status has played a vital role in the mental health status of children. Adolescents with without parents were found in higher risk of getting suffered; the odds of adolescents without parents had 3.37 times higher and only father had 2.08 times higher than those living with both parents. The finding of Rimal HS et al⁸ compatible with present findings as he found that girls were significantly more likely to have emotional problems than boys (p value <0.05). Gender difference was also significant statistically as girls had higher abnormal total SDQ score than boys (p value < 0.05). Another study conducted by Reinholdt-Dunne ML et al.¹² found the variables as living with single parents or other nonparent care givers, having a chronic disabling physical condition, lower maternal education, and coming from a family in the lower FAS-score category were all independently associated with higher odds of mental health problems, after controlling for all potential socio-demographic confounders.

LIMITATION OF THE STUDY

Behavioural difficulties of the adolescents has been attempted to estimate only by using SDQ and it may not cover all dimensions of mental health. Study covers the information of 11-17 years adolescents who were attending to the school. The characteristics of out school adolescents might not be represented by the study.

CONCLUSION

The prevalence of total (overall) behavioural abnormalities was found much higher among school going adolescents in Eastern Nepal (35%). Proportion of emotional problems were found most common domain, conduct disorder and hyperactivity/ inattention also found significant in volume. Female sex, parent's non-belongingness, Mountain ecological belt and parent's education (father) were found significantly associated with behavioural problems.



RECOMMENDATION

Policy should be formulated to create the positive environment in the school as well as community to protect the mental health and psychology of the children. Training in responsible parenting should be explored to maintain good environment at home and training also be provided to the

teachers to encourage children towards positivism and to handle children with mental difficulties. A nationwide research is essential to dig out the real problem of adolescents in Nepal. There is also a scope for operational research on mental health particularly behavioural issues to establish causal relationship.

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