Original Research Article

Prevalence of mental health problems by using strength and difficulty questionnaire in school going adolescents (11-17 years) of Jaipur city, Rajasthan

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ABSTRACT

Background: Adolescents constituting 21% of India's population. Most mental disorders begin before age 14, though they are often first detected later in life. Detecting these disorders and individual prone to these disorders at earlier ages can facilitate better treatment. With this in mind the present study was planned to find out the prevalence and pattern of mental health problem and their association with socio-demographic factors (age, gender, religion and socio-economic status) in school going adolescents in Jaipur.

Methods: A cross-sectional study was conducted on 994 school going adolescents (11-17 years) studying in 6th to 12th class of Jaipur city, Rajasthan. The simple random sampling and self reported version of Strength & Difficulty questionnaire (SDQ) were used to assess mental health. Chi-square was used to test significance.

Results: The 8.35% school going adolescents had abnormal SDQ score indicating probable mental disorders. The borderline and normal adolescents on total difficulty score were 14.19%, 77.46% respectively. Conduct Problem was the most prevalent (12%), followed by emotional (10%), peer (7%), hyperactivity (6%) and prosocial problem (5%). Impact of total difficulty was abnormal in 13.78% adolescents. The age and SES were found significantly associated with mental health problems (p<0.05). The mental health was not associated with gender, religion and school type.

Conclusions: The proportion of borderline and abnormal adolescents was more than one fifth on total difficulty score that need further evaluation and appropriate counselling/treatment by psychiatrist.

Keywords: Prevalence, Strength and difficulty questionnaire, Mental health, Total difficulty score, Impact

INTRODUCTION

The WHO defines adolescence period between age 10 to 19.[1] It is a very crucial period as rapid growth, physical, psychological and sexual maturation occurs in this period. The adolescents comprise 1.2 billion of world and 243 million of Indian population.[2,3] The mental health or behaviour problems are present in around 20% in adolescents worldwide.[4] In India according to community based studies prevalence is reported 0.83 to 29.40% and according to school based studies on children/adolescents prevalence is reported between 6.33 to 43%.[5,6]

The mental health problems can be explained by two ways: internalising and externalising.[7-8] The internalising problems include emotional, peer problem, depression and anxiety while conduct, hyperactivity and antisocial problems are some of the externalising problems faced by adolescents. These problems linked to various negative outcome in future like poor academic achievement,

school dropout, loneliness, depression, suicidal thought, victimization and violence. So the detection of these problems in early age can be fruitful for quality of life of individual and ultimately for country. Furthermore studies on mental health provide baseline data which would be useful in identifying at risk children, in finding causative & protective factors of mental disorders and in making various policies/strategies for prevention of mental health disorders.

With this in mind, the present study had done to find out the prevalence and pattern of mental health problems in school going adolescents (11-17 years) in Jaipur city, Rajasthan and to find out association between mental problems and various socio-demographic factors (age, gender, religion, socioeconomic status and school type).

METHODS

Study design and population

This cross sectional descriptive study was done on students of age group 11-17 years of eight randomly selected schools of Jaipur city, Rajasthan from 01 July 2017 to 25 March 2018. The sample size was calculated 794 at 95% confidence and 2% absolute error to verify the expected minimum 8.7% of abnormal SDQ score and which was enhanced to 1000, to cover expected 20% non-response.[9]

Sampling technique

A list of all senior secondary schools with ≥500 students were taken from Department of Education and one government & one private school from all four zone was randomly selected using simple random sampling technique i.e. 8 schools in total. The 126 students from each school were randomly selected to cover sample size of 1000; hence 18 students from each class (6th to 12th) were included. In case where more than one sections present in a class, section was selected by chit in box method and then 18 children were selected by simple random method from the list of class rolls by using computer generated random numbers. All randomly selected eligible students were distributed socio-demographic and SDQ questionnaire, after explaining them the purpose of study and promise of anonymity. The data were collected for variables: age, gender, religion and socioeconomic status (SES). SES was determined by modified Kuppuswami classification November 2018. Out of 1008 selected students, 994 filled questionnaire completely.

Study tool SDQ

This is a user-friendly screening questionnaire (validated), used to assess behavioural problems and mental health disorders. It exists in several versions to meet the needs of researchers, clinicians and educationalists. The self-report version was used for

present study; suitable for adolescents aged around 11-17, depending on their level of understanding and literacy. All versions of the SDQ ask about 25 attributes that are divided between 5 scales (five items in each scale):

1) Emotional symptoms scale

2) Conduct problems scale

3) Hyperactivity scale

4) Peer problems scale

5) Prosocial scale

By adding the scores of all scales except prosocial scale the total difficulty score was generated. Total scores were only calculated if at least three of the five items had been completed. The abnormal on total difficulty score indicating probable mental disorders and borderline adolescents should take care of by their parents and teachers to avoid adverse consequences in future (Table 1).

Table 1: Interpretation of SDQ scoring values.

The SDQ scoring	Normal	Borderline	Abnormal
Total difficulty score	0-15	16-19	20-40
Emotional symptoms score	0-5	6	7-10
Conduct problems score	0-3	4	5-10
Hyperactivity score	0-5	6	7-10
Peer problems score	0-3	4-5	6-10
Prosocial score	6-10	5	0-4
Total impact score	0	1	≥2

Statistical analysis

The collected data was organized, tabulated and statistically analyzed using Microsoft excel and primer. The data was displayed as number and percentage. The chi-square test was used as a test of significance and p≤0.05 was considered statistically significant.

Ethical consideration

This study was reviewed and approved by the SMS Medical College, Jaipur Ethical Committee. Permission to collect information was taken from District Education officer and respective authorities of the selected schools.

RESULTS

In present study 994 students had filled questionnaire completely- 499 students from private and 495 students

from government school. Out of total students' majority were in age group 15-17 years (45.17%), females (51.21%), Hindus (89.03%) and belonged to class III (33.30%) (Table 2).

Table 2: Socio-demographic characteristic of adolescents (n=994).

Variables	Subgroups	Total (N)	Percentage (%)
Age groups (years)	11-12	253	25.45
	13-14	292	29.38
	15-17	449	45.17
Sex	Male	485	48.79
	Female	509	51.21
Religion	Hindu	885	89.03
	Muslim	95	9.56
	Sikh	6	0.60
	Others	8	0.80
Socio-economic Status (SES)	Class I	42	4.23
	Class II	256	25.75
	Class III	331	33.30
	Class IV	299	30.08
	Class V	66	6.64

Table 3: Prevalence and pattern of mental health problems.

Categories	Normal (%)	Borderline (%)	Abnormal (%)
Total difficulty score	770 (77.46)	141 (14.19)	83 (8.35)
Emotional problems	824 (82.90)	67 (6.74)	103 (10.36)
Conduct problems	766 (77.06)	112 (11.27)	116 (11.67)
Hyperactivity problems	846 (85.11)	86 (8.65)	62 (6.24)
Peer problems	714 (71.83)	207 (20.82)	73 (7.34)
Pro-social problems	877 (88.23)	64 (6.44)	53 (5.33)
Total impact score	777 (78.16)	80 (8.04)	137 (13.78)

Table 4: Association of mental health problems with age.

Category	11-12 years n=253 N (%)	13-14 years n=292 N (%)	15-17 years n=449 N (%)	Total n=994	Chi-square P value
Total difficulty score					
Normal	208 (82.2)	25 (9.9)	20 (7.9)	253	13.702 0.008
Borderline	225 (77.0)	52 (17.8)	15 (5.1)	292	
Abnormal	337 (75.0)	64 (14.3)	48 (10.7)	449	
Emotional problems					
Normal	217 (85.8)	251 (86.0)	356 (79.3)	824	9.761 0.045
Borderline	17 (6.7)	18 (6.2)	32 (7.1)	67	
Abnormal	19 (7.5)	23 (7.9)	61 (13.6)	103	
Conduct problems					
Normal	207 (81.8)	233 (79.8)	326 (72.6)	766	13.787 0.008
Borderline	16 (6.3)	30 (10.3)	66 (14.7)	112	
Abnormal	30 (11.8)	29 (9.9)	57 (12.7)	116	
Hyperactivity problems					
Normal	233 (92.0)	238 (81.5)	375 (83.5)	846	14.014 0.007
Borderline	10 (3.9)	32 (11.0)	44 (9.8)	86	
Abnormal	10 (3.9)	22 (7.5)	30 (6.7)	62	
Peer problems					
Normal	182 (71.9)	211 (72.3)	321 (71.5)	714	3.384 0.496
Borderline	51 (20.1)	55 (18.8)	101 (22.5)	207	
Abnormal	20 (7.9)	26 (8.9)	27 (6.0)	73	

Category	11-12 years n=253	13-14 years n=292	15-17 years n=449	Total n=994	Chi-square P value
	N (%)	N (%)	N (%)		
Prosocial problems (%)					
Normal	229 (90.5)	248 (85.0)	400 (89.0)	877	5.307 0.257
Borderline	12 (4.7)	26 (8.9)	26 (5.8)	64	
Abnormal	12 (4.7)	18 (6.1)	23 (5.1)	53	
Total impact score (%)					
Normal	209 (82.6)	233 (8.0)	335 (74.6)	777	10.222 0.037
Borderline	22 (8.7)	20 (6.8)	38 (8.5)	80	
Abnormal	22 (8.7)	39 (13.4)	76 (16.9)	137	

Table 5: Association of mental health problems with gender.

Category	Male n=485	Female n=509	Total n=994	Chi-square P value
	N (%)	N (%)		
Total difficulty score				
Normal	381 (78.6)	389 (76.4)	770	0.828 0.661
Borderline	67 (13.8)	74 (14.5)	141	
Abnormal	37 (7.6)	46 (9.0)	83	
Emotional problems				
Normal	422 (87.0)	402 (79.0)	824	15.055 <0.001
Borderline	31 (6.4)	36 (7.1)	67	
Abnormal	32 (6.6)	71 (13.9)	103	
Conduct problems				
Normal	356 (73.4)	410 (80.6)	766	7.573 0.023
Borderline	61 (12.6)	51 (10.0)	112	
Abnormal	68 (14.0)	48 (9.4)	116	
Hyperactivity problems				
Normal	421 (86.9)	425 (83.5)	846	2.216 0.330
Borderline	38 (7.8)	48 (9.4)	86	
Abnormal	26 (5.4)	36 (7.0)	62	
Peer problems				
Normal	325 (67.0)	389 (76.4)	714	11.096 0.004
Borderline	120 (24.7)	87 (17.0)	207	
Abnormal	40 (8.2)	33 (6.5)	73	
Prosocial problems				
Normal	424 (87.4)	453 (89.0)	877	6.191 0.045
Borderline	27 (5.6)	37 (7.3)	64	
Abnormal	34 (7.0)	19 (3.7)	53	
Total impact score				
Normal	348 (71.8)	429 (84.3)	777	28.585 <0.001
Borderline	42 (8.7)	38 (7.5)	80	
Abnormal	95 (19.6)	42 (8.3)	137	

The total difficulty score was found abnormal and borderline in 8.35 and 14.19% respectively. The Conduct Problem was the most prevalent problem found among 11.67% adolescents, followed by emotional (10.36%), peer (7.34%), hyperactivity (6.24%) and prosocial problem (5.33%). Total impact score was found abnormal in 13.78% adolescents (Table 3).

The proportion of abnormal and borderline adolescents on total difficulty score was significantly increasing with increasing age. The emotional (13.6%), conduct problems (12.7%) and abnormal impact (16.9%) were significantly high in 15-17 years while hyperactivity (7.5%), peer (8.9%) and prosocial problems (6.1%) were highest in 13-14 year age group (Table 4).

The mental health problems were seen more in females than males (9.0 vs 7.6%). In male most prevalent problem was conduct (14%) and least was hyperactivity (5.4%) while in female most prevalent was emotional (13.9%)

and least was prosocial problems (3.7%). The impact was significantly more in male than female (19.6 vs 8.3%) (Table 5).

The mental health problems were significantly highest in class V (13.9%). The emotional problem (13.7%),

hyperactivity problem (7.7%) and impact (18.7%) were seen highest in those belonged to class IV. The conduct and peer problem were highest in those belonged to class II (Table 6).

Table 6: Association of mental health problems with SES.

| Category	Class I n=42	Class II n=256	Class III n=331	Class IV n=299	Class V n=66	Total n=994	Chi square P value
	N (%)	N (%)	N (%)	N (%)	N (%)		
Total difficulty score							
Normal	33 (78.6)	209 (81.6)	254 (76.7)	217 (72.6)	57 (86.4)	770	21.447
Borderline	4 (9.5)	32 (12.5)	51 (15.4)	54 (18.1)	0	141	0.006
Abnormal	5 (11.9)	15 (5.9)	26 (7.9)	28 (9.4)	9 (13.6	83	
Emotional problems							
Normal	40 (95.2)	218 (85.2)	274 (82.8)	231 (77.3)	61 (92.4)	824	17.001
Borderline	0	14 (5.5)	24 (7.3)	27 (9.0)	2 (3.0)	67	0.030
Abnormal	2 (4.8)	24 (9.4)	33 (10.0)	41 (13.7)	3 (4.5)	103	
Conduct problems							
Normal	36 (85.7)	187 (73.0)	255 (77.0)	227 (75.9)	61 (92.4)	766	19.272
Borderline	4 (9.5)	27 (10.5)	41 (12.4)	35 (11.7)	5 (7.6)	112	0.013
Abnormal	2 (4.8)	42 (16.4)	35 (10.6)	37 (12.4)	0	116	
Hyperactivity problems							
Normal	37 (88.1)	235 (91.8)	278 (84.0)	243 (81.3)	63 (95.5)	846	15.735
Borderline	2 (4.8)	14 (5.5)	34 (10.3)	33 (11.0)	3 (4.5)	86	0.046
Abnormal	3 (7.1)	17 (6.6)	19 (5.7)	23 (7.7)	0	62	
Peer problems							
Normal	40 (95.2)	180 (70.3)	225 (68.0)	207 (69.2)	62 (93.9)	714	34.843
Borderline	2 (4.8)	50 (19.5)	81 (24.5)	70 (23.4)	4 (6.1)	207	<0.001
Abnormal	0	26 (10.2)	25 (7.6)	22 (7.4)	0	73	
Pro-social behaviour problems							
Normal	38 (90.5)	232 (90.6)	295 (89.1)	265 (88.6)	58 (87.9)	877	3.479
Borderline	2 (4.8)	20 (7.8)	16 (4.8)	20 (6.7)	6 (9.1)	64	0.901
Abnormal	2 (4.8)	14 (5.5)	20 (6.0)	14 (4.7)	3 (4.5)	53	
Total impact score							
Normal	36 (85.7)	192 (75)	269 (81.3)	218 (72.9)	62 (93.9)	777	24.447
Borderline	2 (4.8)	21 (8.2)	30 (9.1)	25 (8.4)	2 (3.0)	80	0.002
Abnormal	4 (9.5)	43 (16.8)	32 (9.7)	56 (18.7)	2 (3.0)	137	
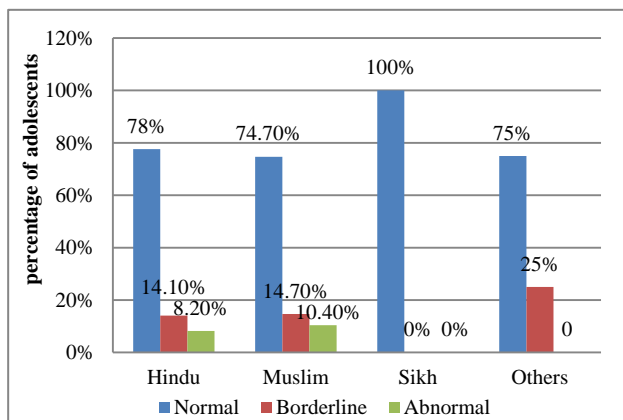
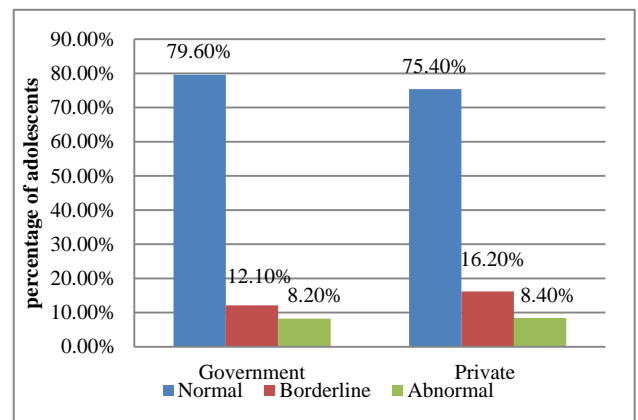**Figure 1: Association of mental health problems with religion.**

Figure 2: Association of mental health problems with school type.

The mental health problems were seen highest in Muslims (10.4%), though insignificant. (Figure 1) Also no significant association was seen between school type and mental health problems although more prevalence were found in those studied in private school (24.6%) compared to government school (20.3%) (Figure 2).

DISCUSSION

The present study provides a snapshot of vulnerability among school going adolescents of Jaipur city, Rajasthan; 8.35% adolescents had overall mental health problems and another 14.19% were on borderline. A study in Jaipur concluded 10.75% adolescents in psychiatric disease zone; this was higher than present study may be due to sample size was small i.e. 400, only 11th and 12th standards included and using different screening tool.[10] The conduct problem was found most prevalent mental health problems among adolescent followed by emotional problem and impact of total difficult was found abnormal in 13.78% adolescents.[9,11,12] The proportion of abnormal and borderline adolescents on total difficulty score was increasing significantly with increasing age.[10,13-14] The reason for the greater prevalence in the later age group may be due to greater prevalence of substance abuse in them. Also the later age group understand themselves better and can answer more openly.

In present study no significant association was found in Mental Health problems between male and female adolescents. Although more female were got abnormal total difficulty score compared to male.[9,10,15] This may be due to cultural and societal factors; furthermore females are more conscious about their physical appearance. This was contrary to other studies.[4,16] In male conduct problems and in females emotional problems were highest because Boys tend to externalise and hence, behavioural issues such as aggression are more common in them.[9,14]

The present study found significant association of socioeconomic status with mental health problems. The proportion of abnormal and borderline adolescents on difficulty score was found highest in class IV.[9,20-23] This increased risk may be because the factors like malnutrition, illiteracy, ignorance and negligence in the childcare are associated with SES.

The present study showed no association of religion with mental health problems, although Muslims had got highest difficulty score.[17]It may be due to illiteracy and lower SES of the parents who may be ignorant of the problems that their children are facing in the schools. These findings were contrary to other studies found significant association of religion with mental health problems.[18,19] This may be due to; high proportion of Muslims in study. Also no significant association was found between school type and prevalence of mental health problems.[10,24]

CONCLUSION

This study will provide local perspective to help understand mental health issues in adolescents. The present study found 8.4% adolescents abnormal on total difficulty score which indicates they have probable mental health disorders. The borderline adolescents were found 14.19%, they should also taken care of by their parents and teachers to avoid adverse consequences in future. The mental health problems were found significantly more in increasing age and those belonged to poor socioeconomic condition.

Recommendations

The present study suggests early confirmation and intervention by a psychiatrist of adolescent those had got abnormal total difficulty score and for early detection and proper treatment teachers at the school level should be trained. The life skills education should be integrated in schools across the curriculum to develop psychological competence of the adolescents attending the school.

Limitation

Although we tried our level best to impress students that their responses are all going to be used purely for research purposes but still considering that our questionnaire elucidated self reported behaviour. This study was done on urban school going adolescents only; not included rural adolescents; whose perception may be different. The dropouts and absent adolescents are likely to be from a vulnerable section of society and have potentially high levels of mental health disorders (although dropout percentage out of schools was very low). The data were based on the self-report only; clinical indices could not be used to confirm this self-report measure.

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