DOI: 10.7860/IJNMR/2021/51193.2309

Original Article

Paediatrics Section

A Cross-sectional Study of Mental Health Status of Rural School Going Students in Late Adolescence Period in Southern India

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ABSTRACT

Introduction: Mental health of rural adolescents is often neglected and their problems are grossly under reported. Though there are many studies available in the literature that describe the mental health status of urban adolescents, there are only a very few studies available to describe the mental health status of the rural adolescents.

Aim: To assess the mental health status of adolescent boys and girls in rural schools in India.

Materials and Methods: This cross-sectional descriptive study was conducted on 151 boys and girls in late adolescence period in two rural schools. The study tool used was Strength and Difficulties Questionnaire-Youth Report 1 (SDQ-YR1) which consists of five subscales- emotional, hyperactivity, peer relationship, conduct problems and prosocial behaviours. All continuous data were described using mean and standard deviation or median and interquartile range based on the distribution. To study the association of different subscales with gender, Chi-square test or Fisher's-exact test was applied based on the expected frequency. The p-value was considered significant at 5% level of significance for all comparisons.

Results: The prevalence of mental health problems as observed by the abnormal total difficulties score was 14% (n=20). The most common high risk clinically significant mental health abnormality observed was in emotional subscale which was observed in 21% of the participants. Conduct problems and hyperactivity problems were each seen in 11% of the participants. Peer problems were less often seen among the participants (6%). The abnormality in prosocial behaviour was seen in only one participant. The total difficulty score which is a sum of the emotional, conduct, hyperactivity and peer problems scale was normal in 65% of the participants, was border line in 21% and was abnormal in 14%. On the analysis of the gender variations in mental health status, a greater number of boys were found to have abnormal scores than the girls.

Conclusion: This study had observed a 14% prevalence of mental health problems in rural adolescents. The mental health problems were more common in the boys than the girls. The early identification of the mental health problems by the teachers can be done by using the SDQ scale which is simple and short.

Keywords: Conduct problems, Emotional, Hyperactivity, Prosocial behaviours, Strength and difficulties questionnaire

INTRODUCTION

Mental health is defined by the World Health Organisation (WHO) as "a state of well-being in which the individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" [1]. Mental health of adolescents is often neglected and their problems are grossly under reported [2]. Adolescent healthcare is out of the scope for a physician treating adults. Adolescents are also not often brought to the pediatrician's office, and if they were brought very little time were spent on counselling them on preventive care focusing on physical, reproductive, mental, social, emotional and spiritual well-being [2]. Adolescents are the pillars of future India and realising this Government of India has started "Rashtriya Kishor Swasthya Karyakram" program targeting adolescent healthcare [3].

Adolescence is the period of life with specific health and developmental requirements and rights. This is also the time to acquire knowledge and new skills, learn to manage the emotions and to the relationships and develop new attributes and abilities that will be most important for the adolescent years and transform to adult roles [4]. Adolescence is a period of stress due to enormous changes experienced by them like

physical maturation, drive for independence, increased salience of social and peer interactions, and brain development [5-8]. Rural children are also vulnerable to mental health problems like the urban children [9]. A study from Gujarat demonstrated a 33% prevalence of mental health problems [9].

In the National Mental Health Survey of 2016, the prevalence of mental health disorders in Indian adolescents in the age group of 13-17 years was 7.3% [10]. Worldwide about 20% of children and adolescents suffer from serious mental health morbidity as per WHO [11]. There are studies from India which have demonstrated significant prevalence of mental health morbidities in adolescents. Though there are many studies available in the literature to describe the mental health status of urban adolescents, there are only a very few studies available to describe the mental health status of the rural adolescents [9,12,13].

Hence, this study was aimed to assess the mental health status (emotional problems, conduct problems, hyperactivity problems, peer problems and prosocial behaviour) of adolescent boys and girls in two rural schools in our district.

MATERIALS AND METHODS

The cross-sectional descriptive study of boys and girls in late adolescence period was conducted in two rural schools in Tamil Nadu, India from January 2021 and March 2021. Two rural schools near Salem, one boy's school and one girl's school with classes up to XII standard were randomly selected. A total of 151 students were enumerated in both the schools. Permission from the school authorities was obtained. Assent from the students were obtained. Institutional human Ethics Committee permission was obtained (Ref. No. 4341/IEC/2019-469).

The self-report questionnaire (SDQ-YR1) was used in this study. Before responding to the questionnaire, the adolescents were briefed about it by one of the authors. The anonymity of the respondents was maintained as their names were not collected. Adequate time was given for the respondents to fill up the questionnaire.

Inclusion criteria: All the adolescent boys and girls present on the days of visit of the investigators to the schools were included in the study.

Exclusion criteria: Students who did not assent were excluded from the study.

Study Tool

The study tool used was the Tamil version of SDQ [14]. The SDQ is a structured questionnaire which is useful for screening the children and adolescent for mental health problems and it contains 25 questions spread across five subscales-emotional, hyperactivity, peer relationship, conduct problems and prosocial behaviours with five questions in each. The sum of the first four subscales yields the total difficulty score. The questionnaire is available in three variants for adolescents: parent report, teacher report and self-report. The self-report questionnaire (SDQ-YR1) was used in this study. The questionnaire had five questions under each subscale. For each question a score of 0, 1 or 2 was given and a maximum of 10 can be scored in each subscale. Based on the score obtained in each subscale the participants were categorised as to clinically unlikely to have problems (normal) (scores between 0 and 15), likely to have clinically significant problems (borderline) (scores between 16 and 19) and substantial risk of clinically significant problems (high risk) (scores between 20 and 40).

The SDQ also analyses the impact of the difficulties on the adolescent's life, which is calculated based on the degree of the impact on the adolescent's home life, friendship, classroom learning, leisure activities and whether the difficulties upset or distress the child. The impact score has a maximum of score of 10. The last component of SDQ is cross informant information which analyses the perception of the family members and teachers about the difficulties faced by the adolescents.

STATISTICAL ANALYSIS

Data was analysed using Statistical Package for the Social Sciences (SPSS) version 24.0. All categorical data were summarised using frequency and percentages. All continuous data were described using mean and Standard Deviation (SD) or median and interquartile range based on the distribution. To study the association of different subscales with gender, Chi-squared test or Fisher's-exact test was applied based on the expected frequency. The p-value was considered significant at 5% level of significance for all comparisons.

RESULTS

The results are tabulated in [Table/Fig-1,2]. After excluding the long absentees, there were totally 141 students in the

Problems	Normal	Borderline	High risk	Mean score
Emotional symptoms score	85 (60%)	26 (19%)	30 (21%)	5.01±2.00 (Max 10)
Conduct problem score	111 (79%)	14 (10%)	16 (11%)	2.34±1.52 (Max 10)
Hyperactivity score	116 (82%)	9 (7%)	16 (11%)	4.11±1.73 (Max 10)
Peer problem score	105 (74%)	28 (20%)	8 (6%)	2.76±1.52 (Max 10)
Prosocial behaviour score	139 (98%)	1 (1%)	1 (1%)	8.92±1.32 (Max 10)
Total difficulties score	91 (65%)	30 (21%)	20 (14%)	14.22±4.60 (Max 40)

[Table/Fig-1]: Mental health status of the study group.

Score	No. (%)
Normal (Score 0)	75 (53%)
Borderline (Score 1)	12 (9%)
Abnormal (Score 2-10)	54 (38%)
Mean score	1.26±1.68

[Table/Fig-2]: SDQ impact score (n=141).

study group with 56 boys and 85 girls. All the students were from the class XII and the mean age of the students was 17.1 years.

Overall, about 66 participants had difficulties in various subscales with many participants having difficulties in more than 1 subscale. The most common high risk clinically significant mental health abnormality observed was in emotional subscale which was observed in 21% of the participants. Conduct problems and hyperactivity problems were each seen in 11% of the participants. Peer problems were less often seen among the participants (6%). The abnormality in prosocial behaviour was seen in only one of the participants. The borderline abnormalities in mental health status were seen in 19%, 10%, 7%, 20% and 1%, respectively in the emotional problems, conduct problems, hyperactivity problems, peer problems and prosocial behaviour subscales.

The overall difficulty score was borderline in 21% and was abnormal in 14%. On analysis of the duration of the difficulties present among the participants who have experienced difficulties (not shown in the tables), 37 (56%), 19 (29%), 6 (9%) and 4 (6%) had difficulties for less than 1 month, 1 to 5 months, 6 to 12 months and more than 1 year respectively. The impact score was normal in 75 (53%) participants [Table/Fig-2]. It was borderline in 12 (9%) participants and abnormal in 54 (38%) participants.

On analysis of the gender variations in mental health status [Table/Fig-3], abnormal scores were seen more in the boys than girls in all the 4 subscales-Emotional (Male: Female=1.15:1), Conduct (4.4:1), Hyperactivity (3.3:1) and Peer problems (2.25:1). However statistical significance was observed only for Conduct and Hyperactivity subscales with p-values of 0.004 and 0.019, respectively. On analysis of the gender variation in the abnormal impact score that was seen in the 54 participants [Table/Fig-4], a statistically significant male preponderance was observed with a male: female ratio of 2.12:1 (p<0.001).

The cross-informant information analyses the perception of the family members and teachers (as self-reported by the adolescents) about the difficulties faced by the adolescents [Table/Fig-5]. About 13% of family members and 25% of

Problems	Boys				Girls				p-value*
	Normal	Borderline	High risk	Total	Normal	Borderline	High risk	Total	
Emotional symptoms score	33 (59%)	10 (18%)	13 (23%)	56	52 (61%)	16 (19%)	17 (20%)	85	0.901
Conduct problem score	37 (66%)	7 (12%)	12 (22%)	56	74 (87%)	7 (8%)	4 (5%)	85	0.004
Hyperactivity score	40 (71%)	5 (9%)	11 (20%)	56	76 (89%)	4 (5%)	5 (6%)	85	0.019
Peer problem score	40 (71%)	11 (20%)	5 (9%)	56	65 (76%)	17 (20%)	3 (4%)	85	0.396
Prosocial behaviour score	54 (96%)	1 (2%)	1 (2%)	56	85 (100%)	0	0	85	0.156
Total difficulties score	32 (57%)	13 (23%)	11 (20%)	56	59 (69%)	17 (20%)	9 (11%)	85	0.234

[Table/Fig-3]: Gender variations in mental health status.
Fischer's exact test

Score	Boys (n=56)	Girls (n=85)	Total (n=141) (%)	p-value (Chi-square test)
Normal (Score 0)	17 (30%)	58 (68%)	75 (53%)	<0.001
Borderline (Score 1)	2 (4%)	10 (12%)	12 (9%)	
Abnormal (Score 2-10)	37 (66%)	17 (20%)	54 (38%)	

[Table/Fig-4]: Gender variations in impact score.

Questions	No			Little			Lot			p-value*
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	
Does your family complain about you having problems with over activity or poor concentration?	40 (36%)	70 (64%)	110 (78%)	6 (50%)	6 (50%)	12 (9%)	10 (53%)	9 (47%)	19 (13%)	0.306
Do your teachers complain about you having problems with over activity or poor concentration?	33 (33%)	68 (67%)	101 (72%)	3 (60%)	2 (40%)	5 (3%)	20 (57%)	15 (43%)	35 (25%)	0.025

Does your family complain about you being awkward or troublesome?	42 (36%)	76 (64%)	118 (83%)	6 (75%)	2 (25%)	8 (6%)	8 (53%)	7 (47%)	15 (11%)	0.046
Do your teachers complain about you being awkward or troublesome?	39 (34%)	76 (66%)	115 (82%)	9 (100%)	0 (0%)	9 (6%)	8 (47%)	9 (53%)	17 (12%)	<0.001

[Table/Fig-5]: Cross informant information.
*Fischer's-exact test

teachers felt that the adolescents were having significant problems of hyperactivity and poor concentration respectively. The problems of hyperactivity and poor concentration as reported by the teachers were more common in boys than girls (p<0.025). Further about 11% of the family members and 12% of the teachers observed that the adolescents were being awkward and troublesome. The problems of being awkward or troublesome as observed by the family members and teachers were more common in the boys than the girls with a p-value of 0.046 and <0.001, respectively.

DISCUSSION

In the present study, the prevalence of mental health problems in rural adolescents as observed by the abnormal total difficulties score was 14%. Though many studies have demonstrated the mental health problems in the adolescents, there are not many studies that focused on mental health problems in the rural adolescents. In a study by Keyho K et al., in Nagaland, a prevalence of 17.2% was observed [15]. Another study from Gujarat observed a 15% prevalence of mental health problems [16]. Prevalence reported in various other studies range from 24-37% [17-21]. The wide variations in the prevalence among the various studies are due to the diverse study population, as the mental health status is known to be influenced by the age, gender, culture, race and various other factors of the participants.

The observed problems in the subscales vary widely from study to study. In a study from Nagaland, conduct (9%) and peer (8%) problems were the most commonly observed mental health abnormalities [15]. In a study among tribal school-going adolescents, it was found that 5.12% had emotional symptoms, 9.61% had conduct problems, 4.23% of the students had hyperactivity and 1.41% had significant peer problems [22]. A study among the school-going adolescents in Aligarh in India, the prevalence of emotional problems was 5.42%, conduct problems was 5.56%, hyperactivity was 3.78%, peer problems was 4.40% and prosocial behaviour was 4.26% [23].

The lower prevalence of peer (6%) and prosocial behaviour problems (1%) observed in this study may be due to the fact that the entire study population is from two rural schools. Similar lower prevalence of prosocial behavioural problems (1.1%) among the rural adolescents was also observed by Kharod N and Kumar D [9]. Rural adolescents were found to be more socialising than the urban adolescents, which can be explained as an effect of urbanisation in urban adolescents [16]. Another study on mental health problems in tribal adolescents found that the prevalence of anxiety/depressed, somatic, withdrawn/depressed, thought problems and attention problems in the tribal adolescents was significantly higher than non tribal adolescents [24]. But a higher prevalence of emotional problems in rural population (8%) when compared to the urban population (6%) was also observed in a study by Nair S et al., [16]. This contrast in emotional problems in the present study may be due to the fact that the study population is confined to Class XII alone and is from rural population only.

In the present study, on analysis of the gender variations in the mental health problems, 66% of the boys had an abnormal difficulty score and 20% girls had an abnormal difficulty score (male: female ratio-1.8:1). In few other studies emotional problems were commonly observed in the girls than the boys [16,25,26]. Wide variations in the mental health problems among adolescents from different societies and cultures were reported by Rescorla L et al., [27]. The authors studied the behavioural and emotional problems of children between 6 and 16 years across 31 societies and emphasised the need to take account of the multicultural variations while analysing the mental health statuses of children and adolescents.

In the present study, a statistically significant higher prevalence of conduct and hyperactivity problems was seen in the boys than girls. This was similar to other studies which also observed a similar male preponderance [25,26]. It is a known fact that the boys externalise their problems and girls internalise it [26]. In the present study, none of the girls had borderline or abnormal score in the prosocial behaviour. This was also observed in many other studies [16,22]. Girls in our country are brought up with the qualities of being gentle and helpful nature which might be the reason for the adolescent girls to behave more socially interacting.

The high prevalence of mental health abnormalities in rural adolescents, as observed in this study, warrants a periodic

appraisal and management. This study has also demonstrated the usefulness of the SDQ in evaluating the mental health problems in rural adolescents. The SDQ is much shorter and easier to use than the other similar tools. It can be downloaded free of cost and can be used by all the schools having adolescent students [28]. The availability of SDQ in all local Indian languages is a boon to the users and the teachers can be easily trained in administering the Teacher Report form of SDQ [14].

Limitation(s)

Because of the prevailing COVID-19 pandemic, only the class XII was functioning during the study period of three months between January 2021 and March 2021 and the entire study population was limited to that class alone. Because of the prevailing pandemic situation, the parents could not be interviewed and their socio-demographic data could not be collected. These are the major limitations of this study.

CONCLUSION(S)

This study has observed a 14% prevalence of mental health problems in rural boys and girls in late adolescence period. The problems were more common in the boys than the girls. Early identification and treatment of the problems are needed urgently. The early identification of the mental health problems by the teachers can be done by using the SDQ which is simple and short.

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PLAGIARISM CHECKING METHODS: [Jain H et al.]
- Plagiarism X-checker: Jul 07, 2021
- Manual Googling: Aug 21, 2021
- iThenticate Software: Sep 15, 2021 (5%)

ETYMOLOGY: Author Origin

AUTHOR DECLARATION:
- Financial or Other Competing Interests: None
- Was Ethics Committee Approval obtained for this study? Yes
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Jul 03, 2021**
Date of Peer Review: **Jul 28, 2021**
Date of Acceptance: **Aug 26, 2021**
Date of Publishing: **Sep 30, 2021**