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Prevalence of Behavioural Disorders and Its Correlates Among Adolescents in Uttara Kannada, Karnataka –A Cross Sectional Study

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ABSTRACT

Background: Childhood and adolescence are critical stages of life for mental health. This is a time when rapid growth and development takes place. Half of all mental health conditions start by 14 years of age but most cases are undetected and untreated. Behavioural patterns of adolescents are not much explored in India. In this study, we aim to assess the behavioural pattern and its correlates among adolescents in Karwar of Uttara kannada district, Karnataka.

Methodology: It is a cross-sectional questionnaire-based study conducted on adolescents studying in Government Pre-University college of Karwar in the month of June and July 2019.The Strengths and Difficulties Questionnaire (SDQ) was used to assess the mental health status of adolescents. The total difficulties score is used to categorize adolescents as normal (0-15) and high [borderline (16-19) and abnormal (20-40)].

Results: Although majority of adolescents were in the normal range, a significant number of adolescents were in borderline (18.4%) and abnormal (14.1%) SDQ scores. Binary logistic regression analysis shows that use of social media, abnormal emotional grade, conduct grade, hyperactivity grade, peer grade and impact grade were found statistically significant.

Conclusion: Significant numbers of adolescents were in high range of SDQ scores and suffered from emotional, conduct, prosocial behaviour and hyperactivity problems.

Key words: Adolescents, Behaviour, SDQ

INTRODUCTION

Childhood and adolescence are critical stages of life for mental health. Rapid growth and development take place during this time. Cognitive and social-emotional skills acquired by Children and adolescents shape their future mental health and are important for assuming adult roles in society. Adolescent is defined by World Health Organisation as a person between 10-19 years of age. Adolescents represent over 16% of the world's population and play a central role in achieving the 2030 Sustainable Development Goals.[1] India has the largest national population of adolescents (243 million), followed by China (207 million), and United States (44 million).[2] Half of all mental health conditions start by 14 years of age, but most cases are undetected and untreated.[3]

Major causes of illness and disability among young people are the mental health conditions, such as childhood epilepsy, developmental disabilities, depression, anxiety and behavioural disorders. Around 10% of global children and adolescents experience a mental disorder, but majority of them do not seek help or receive care. Fourth leading cause of death among 15–19-year-olds is suicide. If these mental health conditions are not addressed, then they may extend to adulthood and hamper the opportunities to

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lead a normal life.[4]

As per National Mental Health Survey of India, 2015-16 undertaken by NIMHANS, prevalence of mental disorders in age group 13-17 years was 7.3%. The most common prevalent problems were depressive episode & recurrent depressive disorder (2.6%), agoraphobia (2.3%), intellectual disability (1.7%), autism spectrum disorder (1.6%), phobic anxiety disorder (1.3%) and psychotic disorder (1.3%).[5]

Prevention can save lives by intervening at the early stage of life so that impending health disaster can be averted. As the WHO definition of health goes, health cannot be complete without the mental component. If adolescents are made strong enough to handle the mental health issues at the early stage, then they will have confidence to lead a normal life and becoming an asset to the nation's development.

Mental health of children and adolescents are not much explored in India and in Karnataka. In this study, we aimed to assess the prevalence of the behavioural disorders and its correlates among adolescent and to compare differences among girls and boys studying in Pre-University College in Karwar of Uttara Kannada district, Karnataka.

METHODOLOGY

The present study is a cross-sectional questionnaire-based study conducted among adolescents studying in Government Pre-University College in Karwar of Uttara Kannada district, Karnataka in the month of June and July 2019. All the students present on those days at the time of the survey were included in the study (universal sampling) which amounted to 319 sample size. The study was conducted after obtaining clearance from institutional ethical review board. Permission was taken from the principal of the college for conducting the study. Informed consent form was taken from students prior to delivering of the questionnaire. Exclusion criteria was students aged more than 19 years old and those who were not willing to participate in the study. Information on socio-demographic variables and other relevant information like risk factors for behavioural disorders were collected through semi-structured pre-tested questionnaire. Self-reporting version of the Strengths and Difficulties Questionnaire (SDQ) was used to collect the perspectives of adolescents. Adolescents were interviewed individually by the study team.

Robert N. Goodman an English child psychiatrist developed the strengths and difficulties questionnaire (SDQ)in 1997. It is a 25 item self-report inventory to measure behavioural and emotional difficulties for assessing the mental health problems of children and adolescents aged 4–19 years. The SDQ has five scales (scored 0–10); emotional problems, conduct problems, hyperactivity, peer problems and pro-social scale. The scales are combined (excluding the pro-social scale) into a 'total difficulties' score (0–40).[6,7] SDQ is used as a screening tool and to measure treatment outcome.[8] SDQ is available in over 40 different languages and has been widely engaged by clinicians and researchers across many countries for screening mental health problems. It can be utilised without charge for non-commercial purposes.[9,10]

Piloting was done among 35 adolescents (18 boys and 17 girls) studying in Government Pre-University college of Karwar for validation. Total difficulties score was used to categorise the mental health status of the adolescents into normal (0-15) and high [borderline (16-19) and abnormal (20-40)].[6,7] Education regarding mental health was given to all the students post survey.

The data was cleaned, coded, and analysed using Epi-info 7.2 version software. Categorical variables were expressed in proportions. To determine the factors associated with behavioural disorders, the three SDQ outcome categories i.e., normal, borderline and abnormal was reduced to two categories namely normal and high (combining borderline and abnormal). Univariate analysis and Binary logistic regression analysis were applied to know the strength of association. Adjusted odds ratio was used for final interpretation of association.

RESULTS

In the present study 319 adolescents participated of which girls (190) were slightly more than boys. Maximum students were aged between 16 to17 years. Only 1.5% of the fathers of the study participants were illiterate, whereas 2.8% of the mothers of the study participants were illiterate. Majority of the participants were from nuclear families (80.9%) and number of participants from the joint family were slightly on lower side (18.5%) with 2 participants having broken families. Although 67.3% of the adolescents are in the normal range, a significant number of adolescents are in borderline (18.4%) and abnormal (14.1%) range making up a total of 32.5% in the range 16-40 score of SDQ.

Table 1: Distribution of mental health problems among adolescents

Domain (n=319)	Normal (%)	Borderline (%)	Abnormal (%)
Emotional problems score	236(73.9)	31(9.7)	52(16.3)
Conduct problems score	210(65.8)	53(16.6)	56(17.5)
Hyperactivity score	259(81.1)	40(12.5)	20(6.3)
Peer problems score	237(74.3)	66(20.6)	16(5.1)
Pro-social score	275(86.2)	28(8.7)	16(5.1)
Total difficulties score	215(67.3)	59(18.4)	45(14.1)

Table 2: Distribution of mental health problems according to gender

Domains	Boys (%)	Girls (%)	Chisquare Value	P value
Emotional Problems Score				
Normal	110 (85.2)	126 (66.3)	14.32	<0.0001
Borderline	6 (4.6)	25 (13.1)		
Abnormal	13 (10.2)	39 (20.5)		
Conduct problems Score				
Normal	92 (71.3)	118 (62.1)	3.51	0.1725
Borderline	20 (15.5)	33 (17.3)		
Abnormal	17 (13.1)	39 (20.5)		
Hyperactivity Score				
Normal	107 (82.9)	152 (80)	6.2	0.04
Borderline	19 (14.7)	21 (11.1)		
Abnormal	3 (2.3)	17 (8.9)		
Peer Problems Score				
Normal	95 (73.6)	142 (74.7)	0.909	0.63
Borderline	29 (22.4)	37 (19.4)		
Abnormal	5 (4)	11 (5.8)		
Pro-Social Score				
Normal	104 (80.6)	171 (90)	6.17	0.046
Borderline	17 (13.1)	11(5.8)		
Abnormal	8 (6.3)	8 (4.2)		
Total Difficulty Score				
Normal	97 (75.2)	118 (62.1)	18.72	0.0001
Borderline	27 (21)	32 (16.8)		
Abnormal	5 (3.8)	40 (21.1)		

Overall conduct problems (17.5%) and emotional problems (16.3%) were the most common problems in our study.

As per Table 2 mental health problems according to gender shows girls were having higher emotional problems, conduct problems and hyperactivity compared to boys. Significant number of girls has abnormal total difficulty score than boys. Gender is statistically significantly associated with emotional problems, hyperactivity and prosocial behaviour. Total difficulty score of SDQ is also statistically significantly associated with gender.

Any adolescent who uses social media had 8.32 times (Adjusted OR= 8.32 with p=0.005) more chances of getting high SDQ score as compared to the student who doesn't use social media. Similarly, adolescents whose emotional problems score was abnormal had 113.84 times (Adjusted OR= 113.84 with p< 0.001), whose conduct problems score was abnormal had 15.23 times (Adjusted OR= 15.23 with p< 0.001), whose hyperactivity score was abnormal had 21.14 times (Adjusted OR= 21.14 with p< 0.001), whose Peer problems score was abnormal had 103.16 times (Adjusted OR= 103.16 with p< 0.001) and whose Impact score was abnormal had 8.87 times (Adjusted OR= 8.87 with p = 0.003) more chances of getting high (combined borderline and abnormal) SDQ score as compared to the adolescents whose SDQ scores were normal. All other independent variables like age, gender, family type, parent's education, parent's occupation, performance in last annual exams, mental illness in family, breaking law in family, sexual abuse and suicidal thoughts were non-significant in binary logistic regression model.

DISCUSSION

In the present study, as per the total difficulties score of Strengths and Difficulties Questionnaire (SDQ) we found that majority of adolescents were in the normal range, however significant number were in borderline and abnormal range making up a total of 32.5%. This is a matter of concern because according to the research conducted by Goodman R. on Strengths and difficulties questionnaire, it can be seen that children with SDQ scores 16-40 are likely to have greater rates of existing mental disorders compared with children of low SDQ scores.[11] If we look into the percentages of previous Indian studies, they range from 24% to 37%.[12,13] However in a study conducted by Bhola P, et al., it has been stated that 10.1% of adolescents had total difficulty levels in the abnormal range.[14] Another study conducted in Gujarat, showed that 15% of the students in the study were found to have high SDQ scores.[15] Similarly Shekhawat R et al in their Jaipur study found 21.82% of the adolescents were in borderline and abnormal score of SDQ total impact score.[19]

The mental health problems according to gender shows girls were having higher emotional problems, conduct problems and hyperactivity compared to boys. Significant number of girls has abnormal total difficulty score than boys. A study by Bhola, et al.: Self-reported emotional and behavioural difficulties also reported that emotional problems (13%) and conduct problems (8%) but peer problems (28%) were also most common.[14] Gender is statistically significantly associated with emotional problems, hyperactivity and prosocial behaviour. Total difficulty score of SDQ is also statistically significantly associated with gender.

Table 3: Bi variate analysis to determine the factors associated with mental health problems

Variable	Total SDQ Score		Crude OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
	High (n=104) (%)	Normal (n=215) (%)				
Gender						
Female	72 (69.2)	118 (54.9)	1		1	
Male	32 (30.8)	97 (45.1)	0.54 (0.33 -0.89)	0.015*	0.29 (0.08 – 1.04)	0.058
Type of Family						
Nuclear	78 (75.0)	180 (83.7)	1		1	
Joint	25 (24.0)	34 (15.8)	1.72 (0.96 - 3.07)	0.068	0.91 (0.22 – 3.85)	0.898
Broken	1 (1.0)	1 (0.5)	2.34 (0.14 - 37.86)	0.55	0	1
Father's Education						
Unknown	1 (1.0)	12 (5.6)	1		1	
Illiterate	0 (0)	5 (2.3)	0	0.999	$1.47*10^{6}$	0.999
1st to 10th std	59 (56.7)	99 (46.0)	7.15 (0.91 - 56.41)	0.062	$2.73*10^{14}$	0.998
PUC/Diploma	25 (24.0)	55 (25.6)	5.46 (0.67-44.28)	0.112	$7.33*10^{13}$	0.998
Graduate	19 (18.3)	44 (20.5)	5.18 (0.63 - 42.73)	0.126	$1.7*10^{14}$	0.998
Mother's Education						
Illiterate	2 (1.9)	7 (3.2)	1		1	
1st to 10th std	67 (64.4)	100 (46.5)	2.35 (0.47 - 11.63)	0.297	0.25 (0 – 252.3)	0.693
PUC/Diploma	17 (16.3)	47 (21.9)	1.27 (0.24 - 6.70)	0.782	0.05 (0 – 61.42)	0.415
Graduate	17 (16.3)	52 (24.2)	1.14 (0.22 - 6.04)	0.874	0.17 (0 – 208.14)	0.621
Unknown	1 (1.0)	9 (4.2)	0.39 (0.03 - 5.21)	0.476	0	0.999
Father's Occupation						
Professional	13 (12.5)	19 (8.8)	1		1	
Skilled	43 (41.3)	88 (4.9)	0.71 (0.32 - 1.58)	0.406	1.21 (0.12 – 11.92)	0.872
Semi-skilled	22 (21.2)	62 28.8)	0.52 (0.22 - 1.22)	0.133	1.3 (0.11 – 14.85)	0.836
Unskilled	19 (18.3)	39 (18.1)	0.71 (0.29 - 1.74)	0.456	0.48 (0.03 – 6.96)	0.589
Expired/unknown	7 (6.7)	7 (3.3)	1.46 (0.41 - 5.17)	0.556	$15.9 (0.15 – 1.74*10^{3})$	0.246
Mother's Occupation						
Professional	3 (2.9)	2 (0.9)	1		1	
Skilled	9 (8.7)	12 (5.6)	0.5 (0.069 - 3.65)	0.494	1.22 (0.02 – 73.11)	0.925
Semi- skilled	3 (2.9)	8 (3.7)	0.25 (0.027 - 2.32)	0.223	0.02 (0 – 3.45)	0.131
Unskilled	0 (0)	2 (0.9)	0	0.999	0	1
Expired/unknown	1 (1.0)	0 (0)	$1.08*10^{9}$	1	$2.46*10^{34}$	0.999
House maker	88 (84.6)	191 (88.8)	0.31 (0.05 - 1.87)	0.2	0.07 (0.002 - 2.51)	0.146
Performance in last annual exams						
<50%	2 (1.9)	2 (0.9)	1		1	
51 – 75%	45 (43.3)	60 (27.9)	0.75 (0.10- 5.53)	0.778	0	0.998
76 – 90%	48 (46.2)	113 (52.6)	0.43 (0.06 - 3.10)	0.399	0	0.998
>90%	9 (8.7)	40 (18.6)	0.23 (0.03 - 1.82)	0.162	0	0.998
Mental illness in Family	10 (9.6)	4 (1.9)	5.6 (1.72 - 18.35)	0.004*	0.939 (0.10 - 8.52)	0.955
Breaking law in family	13 (12.5)	8 (3.7)	3.70 (1.48 - 9.23)	0.005*	3.467 (0.44 to 27.28)	0.237
Experienced Sexual Abuse	4 (3.8)	5 (2.3)	1.68 (0.44 - 6.39)	0.447	0.465 (0.03 to 7.93)	0.597
Having Suicidal Thoughts	5 (4.8)	7 (3.3)	1.50 (0.47 - 4.85)	0.497	0.385 (0.04 - 4.25)	0.436
Using social media	81 (77.9)	158 (73.5)	1.27 (0.73 - 2.21)	0.396	8.32 (1.87 - 36.98)	0.005*
High Emotional problems score	61 (58.7)	22(10.2)	12.5 (6.9 - 22.4)	<0.001*	113.8 (24.9 - 519.2)	<0.001*
High Conduct problems score	63 (60.6)	46 (21.4)	5.65 (3.39 - 9.41)	<0.001*	15.23 (4.46 – 51.98)	<0.001*
High Hyperactivity score	43 (41.3)	17 (7.9)	8.21 (4.37 - 15.23)	<0.001*	21.14 (4.83 – 92.48)	<0.001*
High Peer problems score	60 (57.7)	22 (10.2)	11.9 (6.6 - 21.5)	<0.001*	103.2 (22.9 – 465.4)	<0.001*
High Pro-social Grade	19 (18.3)	25 (11.6)	1.7 (0.89 - 3.25)	0.11	1.15 (0.36 – 3.67)	0.816

*Significant Cox & Snell R^2= 0.582, Nagelkerke R^2= 0.812

Omnibus tests of model coefficients were significant with p <0.001 and according to Hosmer & Lemeshow test, the model was a good fit with P = 0.856

Emotional problems and conduct problems were the most common problems in our study with higher percentage of emotional problems occurred in girls than in boys. This was consistent with the study conducted in Bangalore, where emotional problems were high among girls in both rural and urban areas than boys.[14] The study by Rambha Pathak et al also shows a higher prevalence of emotional problems (33.7%) than boys(27.5%).[16]Also a study from Goa done among 16 to 24 years old, shows 3.9% of youths reported suicidal behaviours with females four times more prone than males.[17] Shekhawat R et al in their Jaipur study found Conduct Problem as most prevalent among adolescent (12%), followed by Emotional Problem (10%), Peer Problems (7%),Hyperactivity (6%) and Prosocial Problem (5%).[19]

In our study binary logistic regression analysis shows that use of social media, abnormal emotional grade, conduct grade, hyperactivity grade and peer grade were found statistically significant. Mental illness in the family, breaking law in the family, sexual abuse and suicidal thoughts were statistically not significant. Also, another study quoted that student who are feeling that they lag behind in their studies have emotional and behavioural problems.[15] Sexual abuse is one such condition where the adolescents

will hesitate and not be able to express about freely especially girls which will be a path to hinder mental health. In psychiatric evaluations 75.2% of the victims of sexual abuse were diagnosed with a psychiatric disorder.[18] Also mentally ill member in the family, breaking law in the family are definitely not very good environment for the mental development of the adolescent. Procuring less than 50% marks in the exams can be perceived as a shameful matter that further lowers the self-esteem of the adolescent affecting mental health. Also, another study quoted that student who are feeling that they lag behind in their studies have emotional and behavioural problems.[14]

The present study is based on a self-reported questionnaire. SDQ is one of the best methods to assess the mental health by simple means. However, as adolescence is characterized by self-doubt, concealment and modification of the fact which is a known limitation of all self-reported questionnaire.[15]

CONCLUSION

Many studies have been conducted on various aspects of the mental health of adolescents across the world. This study included a small population of adolescents of Karwar. Yet we could discover that significant number of our participants were in abnormal range of SDQ score and suffered from emotional problems, conduct problems, prosocial behaviour and hyperactivity. Higher percentage of girls had emotional and conduct problems than boys. Also, many factors were responsible for the mental health problems arising among adolescents. Hence, adolescent's mental health status should be periodically assessed, and counselling and curative services should be provided along with life skills education so that adolescents be made strong enough to handle the mental health issues at the early stage of life and to have confidence to lead a normal life.

LIMITATION

The present study was based on only self-reported behaviour. Even though education regarding mental health was given to all the students post survey, confirmation of behavioural disorders was not done. Early adolescents were not part of present study, who may have different perceptions.

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