

Prevalence of social anxiety disorder and its determinants in school going adolescents in rural population of Ramnagara district

Archana S, Prasad K N, Bushra Jabeen

Department of Community Medicine, Dr. B. R. Ambedkar Medical College, Bengaluru, Karnataka, India

Correspondence to: Archana S, E-mail: archanadr987@gmail.com

Received: May 19, 2017; Accepted: June 13, 2017

ABSTRACT

Background: The social phobia or social anxiety disorder (SAD) is likely to play adversely on their adulthood if it is not detected and treated during adolescence period. The problem of SAD is varying in rural and urban population based on multiple issues. **Objective:** The objective of the study is to estimate the prevalence and determinants of SAD (social phobia) among school children aged 11-16 years in rural population of Ramnagara district, Karnataka. **Materials and Methods:** A community-based, cross-sectional, and descriptive study was conducted in the six schools in Ramnagara district of Karnataka during the month of August 2016. The pretested, semi-open ended questionnaire was used to interview school children aged between 11 and 16 years in the school premises. Data were collected from each child separately by investigators after taking the consent from the Principal. The information was collected on social phobia inventory (SPIN) scale and sociodemographic factors. The SPIN is a 17-item self-rating scale with minimum score as “0” and maximum score as “68” and adolescents were categorized as having SAD with cutoff score of more than 20. The data were analyzed in SPSS version 18.0. **Results:** Out of 446 students, 232 were males and 214 were female adolescents. The prevalence of SAD was 39.7%. The mild, moderate, and severe SAD accounted for 24.1%, 13.9%, and 1.6%, respectively. It was more in the female adolescents (47.7%) and age group of 11-13 years (43.4%). The mean score was 18.23 (± 10.7) and it was higher for female adolescents. Number of siblings, family type, active physical activity, sports, yoga, and meditation had influence on the prevalence of SAD on males and females as assessed by odd’s ratio and many factors were found to be statistically not significant. **Conclusion:** The prevalence of SAD was two out of five adolescents, and one-fourth of the adolescents had mild grade SAD. The important determinants of SAD were age, type of family, and yoga.


KEY WORDS: Social Anxiety Disorder; Social Phobia; Social Phobia Inventory; Adolescent

INTRODUCTION

The physiological development during adolescence or puberty leads to changes in emotional and physical reaction to the socio-environmental situations. There are evidence that the type of personality, type, moral support at home, interaction

with peer group and physical activities lessens those emotional reactions and psychological disorders. Some of the problems will start as anxiety or phobia that are termed social anxiety disorder (SAD) at early or mid-adolescence phase and may remain for temporary duration. In some individuals, it may be more in severity that may disturb their routine activities.^[1-3]

There are several methods and scales available to measure the SAD problems among school children and adolescents.^[4,5] Based on these scales, it was assumed that the prevalence of severe SAD was 4.3-20% worldwide.^[1,2,5,6] There are differences in rural and urban areas in the prevalence of SAD or social phobia among school children in India. The children are exposed to various kinds of electronic gadgets and virtual play games and

Access this article online	
Website: http://www.ijmsph.com	Quick Response code
DOI: 10.5455/ijmsph.2017.0513413062017	

International Journal of Medical Science and Public Health Online 2017. © 2017 Archana S, et al. This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), allowing third parties to copy and redistribute the material in any medium or format and to remix, transform, and build upon the material for any purpose, even commercially, provided the original work is properly cited and states its license.

social network or media. This kind of exposure will influence in an increase or reduce the problem is not really known, and early intervention is necessary to reduce the late effects of severe social phobia or SAD among school children.³ This study was carried out with the objective to estimate the prevalence and determinants of SAD (social phobia) among school children aged 11-16 years in Sathanur, Ramnagara district, Karnataka.

MATERIALS AND METHODS

This community-based, cross-sectional, and descriptive study was conducted in the month of August 2016 among the school children studying 6-10th standard from randomly selected six schools in Sathanur, Hobli of Ramnagara district. The schools were three government and three privately owned. Children present on the days of the survey were included for the study and covered more than 90% of the students. The total number of 446 students were interviewed using a semi-structured oral questionnaire.

Informed consent was obtained from Headmaster/Principal of the schools before conducting study in premises. Data on sociodemographic factors, morbidity status, physical activity, yoga, and meditation were collected.

SAD (social phobia) was evaluated using social phobia inventory (SPIN) scale. The scale is rated over the past week and includes items assessing each of the symptom domains of SAD (fear, avoidance, and physiologic arousal). The SPIN is a 17-item self-rating scale with minimum score as "0" and maximum score as "68".

The information thus collected was entered into a spreadsheet using Microsoft Excel and analyzed with the help of Statistical Package for the Social Sciences (SPSS) version 18.0. The prevalence of social phobia was estimated. Chi-square test was applied to test the statistical association between SAD and age, gender, family type, and physical activity. ANOVA was applied to test the statistical association between age, gender and different grades of SAD.

The severity of SAD was categorized on scale as follows:

- None: <20
- Mild: 21-30
- Moderate: 31-40
- Severe: 41-50
- Very severe: >50.

The students with severe SAD were referred for counselling and psychotherapy to the health-care facility.

RESULTS

There were 446 students from six selected schools, 232 were males, and 214 were females as shown in Table 1. Two-thirds

Table 1: Sociodemographic factors of the study population

Variables	n (%)
Age group (years)	
11-13	297 (66.6)
14-16	149 (33.4)
Gender	
Male	232 (52.0)
Female	214 (47.9)
Family type	
Nuclear family	319 (71.5)
Joint family	43 (9.6)
Three generation family	84 (18.8)
Number of siblings	
None	41 (9.2)
One or more	405 (90.8)

of adolescents (66.6%) were in the age group of 11-13 years and one-third (33.4%) in the age group of 14-16 years. The mean age of the total adolescents was 12.9 (± 1.2) years, among boys and girls was 12.8 (± 1.1) years and 12.9 (± 1.3), respectively.

The majority of the adolescents were from nuclear family, and nearly 90% of them had at least one sibling.

Table 2 shows 269 (60.3%) students were free from SAD with a cutoff score of 20 on the SPIN. The proportion of SAD prevalence was more in female adolescents (47.7%) with mean score of 20.14 (± 10.7), and one-fourth of the adolescents had mild SAD. Out of 177 students with social phobia, seven students were found to be suffering from severe social phobia in the age group of 11-13 years.

The association was statistically significant with SAD prevalence and other variables except for number of siblings and physical activity. More number of adolescents aged 11-13 years are suffering from SAD and most of them were girls. The prevalence of SAD was showing decline as the number of family members is more as witnessed in different types of families. Irregularity or absence of playing games/sports accounted high prevalence of SAD. The number of adolescents doing yoga were less, and the prevalence of SAD was high among them (Table 3).

Bivariate analysis of SAD was performed using variables such as age, siblings, type of family with regularly playing, and presence or absence of physical activity among males and females. Girls who were playing regularly but not having regular physical activity were two times more risk of having SAD when compared to those who were playing regularly. Girls having one or more siblings and who were playing regularly but not having regular physical activity were 2.21 times more risk of having SAD when compared to

Table 2: Age and gender wise distribution of SAD score

Factors	n (%)				Total	Mean score (\pm SD)
	None (\leq 20)	Mild SAD (21-30)	Moderate SAD (31-40)	Severe SAD (\geq 41)		
Age in years						
11-13	168 (56.6)	72 (24.2)	50 (16.8)	7 (2.4)	297 (100)	19.14 (\pm 11.2)
14-16	101 (67.8)	36 (24.2)	12 (8.0)	0 (0)	149 (100)	16.43 (\pm 9.3)
Total	269 (60.3)	108 (24.2)	62 (13.9)	7 (1.6)	446 (100)	18.23 (\pm 10.7)
<i>P</i> value - 0.011						
Gender						
Male	157 (67.7)	47 (20.3)	25 (10.8)	3 (1.3)	232 (100)	16.48 (\pm 10.4)
Female	112 (52.3)	61 (28.5)	37 (17.3)	4 (1.9)	214 (100)	20.14 (\pm 10.7)
Total	269 (60.3)	108 (24.2)	62 (13.9)	7 (1.6)	446 (100)	18.23 (\pm 10.7)
<i>P</i> value - 0.011						

P value was estimated using ANOVA. SD: Standard deviation, SAD: Social anxiety disorder

Table 3: Sociodemographic factors and physical activities of students with and without SAD

Factors	n (%)			<i>P</i> value
	SAD present	SAD absent	Total	
Age in years				
11-13	129 (43.4)	168 (56.6)	297 (100)	0.022
14-16	48 (32.2)	101 (67.8)	149 (100)	
Gender				
Male	75 (32.3)	157 (67.7)	232 (100)	0.001
Female	102 (47.7)	112 (52.3)	214 (100)	
Family type				
Nuclear family	147 (46.1)	172 (53.9)	319 (100)	<0.001
Joint family	11 (25.6)	32 (74.4)	43 (100)	
3 Generation family	19 (22.6)	65 (77.4)	84 (100)	
Number of siblings				
One or more	159 (39.3)	246 (60.7)	405 (100)	0.563
None	18 (43.9)	23 (56.1)	41 (100)	
Playing sports/games				
Regularly	158 (38.2)	256 (61.8)	414 (100)	0.018
Irregularly	19 (59.4)	13 (40.6)	32 (100)	
Yoga				
Yes	33 (28.7)	82 (71.3)	115 (100)	0.005
No	144 (43.5)	187 (56.5)	331 (100)	
Meditation				
Yes	8 (72.7)	3 (27.3)	11 (100)	0.023
No	169 (38.9)	266 (61.1)	435 (100)	
Physical activity				
Yes	85 (40.5)	125 (59.5)	210 (100)	0.748
No	92 (39.0)	144 (61.0)	236 (100)	
Total	177 (39.7)	269 (60.3)	446 (100)	

SAD: Social anxiety disorder

those who were playing regularly. Girls belonging to nuclear family and who were playing regularly but not having

regular physical activity were 2.13 times more risk of having SAD when compared to those who were playing regularly (Table 4).

Multiple logistic regression analysis was used to predict the determinants of SAD after dichotomizing the SAD scores with cutoff score 20. Independent variables were dichotomised and were included in the univariate analysis. Variables which were significant in the univariate analysis were age, type of family, and yoga among males. All the three variables (age, type of family, and yoga) turned out to be significant in the multiple logistic regression analysis. Of these three variables, a greater change was seen in terms of odds ratio (OR) for yoga which decreased from 2.8 (1.46-5.51) to 0.3 (0.17-0.69) after adjusting for age and type of family. Type of family, playing sports/games, and physical activity was significant in the univariate analysis among females. Only one variable (type of family) turned out to be significant in the multiple logistic regression analysis and the adjusted OR was 0.39 (0.20-0.75) (Table 5).

DISCUSSION

Social phobia or SAD refers to an intense fear and avoidance of negative public scrutiny, public embarrassment, humiliation, or social interaction. This fear can be specific to a particular situation or social interactions. It may manifest specific physical symptoms including sweating, blushing and difficulty in speaking. The extent to which the children suffer is determined by schooling, cultural factors, environmental and lifestyle prevalence.

The prevalence of SAD among rural adolescents was 39.7% (32.3% in males and 47.7% in females) by administering SPIN, and the mean scores without SAD and with SAD were 10.8 (\pm 4.8) and 29.5 (\pm 6.4), respectively. In our study, out of 39.7% of those screened to be positive for SAD, most belonged to the mild (24.2) and moderate (13.9) social anxiety category, the percentage of school going adolescents

Table 4: Bivariate analysis of SAD among adolescents playing regularly

Factors	Levels	Male			Female		
		SAD present	SAD absent	OR	SAD present	SAD absent	OR
Gender							
Physical activity	Yes	32 (28.3)	81 (71.7)	1	48 (55.2)	39 (44.8)	1
Physical activity	No	39 (35.1)	72 (64.9)	0.73	39 (37.9)	64 (62.1)	2.02*
Total		71 (31.7)	153 (68.3)		87 (45.8)	103 (54.2)	
Age							
11-13							
Physical activity	Yes	29 (36.7)	50 (63.3)	1	36 (57.1)	27 (42.9)	1
Physical activity	No	27 (36)	48 (64)	1.03	26 (41.9)	36 (58.1)	1.85
Total		56 (36.4)	98 (63.6)		62 (49.6)	63 (50.4)	
14-16							
Physical activity	Yes	3 (8.8)	31 (91.2)	1	12 (50)	12 (50)	1
Physical activity	No	12 (33.3)	24 (66.7)	0.19*	13 (31.7)	28 (68.3)	2.15
Total		15 (21.4)	55 (78.6)		25 (38.5)	40 (61.5)	
Siblings none							
Physical activity	Yes	3 (30)	7 (70)	1	0	3 (100)	1
Physical activity	No	4 (40)	6 (60)	0.64	4 (40)	6 (60)	
Total		7 (35)	13 (65)		4 (30.8)	9 (69.2)	
One or more							
Physical activity	Yes	29 (28.2)	74 (71.8)	1	48 (57.1)	36 (42.9)	1
Physical activity	No	35 (34.7)	66 (65.3)	0.74	35 (37.6)	58 (62.4)	2.21*
Total		64 (31.4)	140 (68.6)		83 (46.9)	94 (53.1)	
Family type nuclear							
Physical activity	Yes	27 (35.5)	49 (64.5)	1	43 (62.3)	26 (37.7)	1
Physical activity	No	32 (40)	48 (60)	0.83	31 (43.7)	40 (56.3)	2.13*
Total		59 (37.8)	97 (62.2)		74 (52.9)	66 (47.1)	
Nonnuclear							
Physical activity	Yes	5 (13.5)	32 (86.5)	1	5 (27.8)	13 (72.2)	1
Physical activity	No	7 (22.6)	24 (77.4)	0.54	8 (25)	24 (75)	1.15
Total		12 (17.6)	56 (82.4)		13 (26)	37 (74)	

SAD: Social anxiety disorder, OR: Odds ratio, * $P < 0.05$ significant

belonging to the severe (1.6), and very severe (0%) category was very less which might be due high absenteeism as these children often avoid social situations and high dropout rate among these students.

The prevalence and the mean score were less compared to the study by Soohinda and Sampath.^[2] The prevalence was higher among females than males in this study which is similar to the findings of the other studies with a range of 9.6-16.5%.^[1,4,7]

The incidence of social anxiety in the sample of the population of school going children under the age group 14-17 years to be 10.3% by liebowitz social anxiety scale.^[4] The age distribution clearly showed that the level of social anxiety was higher in children in their early teens, standing at 11.9% in 14 years old, 17.0% in 15 years, 6.4% in 16 years, and 0%

in 17 years old children ($P < 0.05$) and similar observation was found in our study.

Rakhee and Aparna in their study showed the prevalence of social anxiety was 15.6% using screen for child anxiety related disorders tool. They found a significant association between SAD and poor academic performance and limitation in involvement in extracurricular activities and no association of SAD with the type of family, number of siblings, birth order and parents educational and vocational status was found.^[5]

The limitation of the study is that some determinants such as financial status, socioeconomic and cultural factors and academic performance of the students were not assessed which could have had impact on SAD. The strength of this study is that it was based on "rural adolescents".

Table 5: Multiple logistic regression analysis of SAD

Factor	Level	Unadjusted OR	95% CI	P value	Adjusted OR	95% CI	P value
Males							
Age in years	11-13	0.46	0.24-0.88	0.018	0.43	0.22-0.85	0.014
	14-16				1		
Sibling	None	0.82	0.33-2.05	0.671	-	-	-
	One or more						
Family type	Nuclear	0.35	0.18-0.69	0.002	0.32	0.16-0.65	0.002
	Non-nuclear				1		
Playing sports/games	Irregular	2.15	0.52-8.86	0.287	-	-	-
	Regular						
Yoga	No	2.84	1.46-5.52	0.002	0.35	0.18-0.69	0.003
	Yes				1		
Meditation	No	0.47	0.09-2.37	0.359	-	-	-
	Yes						
Physical activity	No	1.43	0.82-2.48	0.207	-	-	-
	Yes						
Females							
Age in years	11-13	0.73	0.42-1.29	0.283	-	-	-
	14-16						
Sibling	None	0.80	0.31-2.06	0.650	-	-	-
	One or more						
Family type	Nuclear family	0.39	0.20-0.75	0.005	0.39	0.20-0.75	0.005
	Non-nuclear family				1		
Playing sports/games	Irregular	1.97	0.82-4.73	0.128	-	-	-
	Regular						
Yoga	No	0.95	0.47-1.90	0.884	-	-	-
	Yes						
Meditation	No			0.999	-	-	-
	Yes						
Physical activity	No	0.577	0.335-0.995	0.048	-	-	-
	Yes						

CI: Confidence interval, OR: Odds ratio, SAD: Social anxiety disorder

This study was carried out among adolescents of the rural area to know the prevalence of SAD and associated factors. This study highlights the necessities of counseling facilities in the school or nearby health facilities after identification of early manifestations.

CONCLUSION

The prevalence of SAD was 39.7%, and one-fourth of the adolescents had mild grade SAD. It was more in the female adolescents (47.7%) and age group of 11-13 years (43.4%). The important determinants of SAD were age, type of family, and yoga. Parents and teachers should be aware of SAD and children should be screened for SAD at earlier stage for counseling or treatment.

ACKNOWLEDGMENT

The authors sincerely thank Dr. Rohan Philip Varghese, Dr. Reshma C Patil, Dr. Ashish Chandra V, Dr. Srinidhi Murthy, Dr. Ramkishore E.S, Dr. Pallavi D, Dr. Niveditha M of Dr. B. R. Ambedkar Medical College for helping in collection of information from school children and acting as a liaison staff.

REFERENCES

1. Kumar P, Babu N, Anandan H, Sathyamurthi B. A study to screen social anxiety disorder among higher secondary school students. *Indian J Res.* 2016;5(5):545-6.
2. Soohinda G, Sampath H. Social phobia among school

- students - Prevalence, demographic correlates and socio-academic impairment. *J Indian Assoc Child Adolesc Ment Health*. 2016;12(3):211-29.
3. Sharan P, Sagar R. The need for national data on epidemiology of child and adolescent mental disorders. *J Indian Assoc Child Adolesc Ment Health*. 2008;4(2):22-7.
 4. Chhabra V, Bhatia MS, Gupta S, Kumar P, Srivastava S. Prevalence of social phobia in school-going adolescents in an urban area. *Delhi Psychiatry J*. 2009;12(1):18-25.
 5. Rakhee AS, Aparna N. A study on the prevalence of anxiety disorders among higher secondary students. *GESJ Educ Sci Psychol*. 2011;1(18):33-7.
 6. Uzonwanne FC. Prevalence of social phobia, gender and school type among young adults in Nigerian universities. *Int J Soc sci Humanit Res*. 2014;2(8):36-45.
 7. Nair MK, Russell PS, Mammen P, Abhiram Chandran R, Krishnan R, Nazeema S, et al. ADad 3: The epidemiology of anxiety disorders among adolescents in a rural community population in India. *Indian J Pediatr*. 2013;80 Suppl 2:S144-8.

How to cite this article: Archana S, Prasad KN, Jabeen B. Prevalence of social anxiety disorder and its determinants in school going adolescents in rural population of Ramnagara district. *Int J Med Sci Public Health* 2017;6(8):1308-1313.

Source of Support: Nil, **Conflict of Interest:** None declared.