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Original Research Article

Prevalence of mental health morbidity among the inmates of childcare homes under Social Justice Department, Government of Kerala

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ABSTRACT

Background: Mental disorders are common, affecting more than 25% of all people at some time during their lives. Worldwide literature has shown that onset of common mental disorders occurs in childhood and adolescence. Children with mental health problems are often first seen and first treated in the education, social justice, or juvenile justice systems. In India, according to Juvenile Justice Act, 2000, such children are institutionalized in children's and observation homes under Social Justice Department. This study aims at assessing the mental health status and estimating the prevalence of mental health morbidity among these children and adolescents.
Methods: This is a cross sectional study conducted among the inmates of childcare homes under the Social Justice Department, Government of Kerala. Each individual district in the state was fixed as clusters. Out of the 14 districts, five districts were randomly selected. The childcare homes in each cluster were included. All the eligible children in the cluster during the visit were studied.
Results: The median SDQ total score of the study participants was 15 (11, 21). The prevalence of mental health morbidity was estimated as 33.3% (95% CI: 26.86% - 40.31%) in the study population. There were 32 (15.9%) study participants with borderline SDQ score.
Conclusions: The prevalence in the current study was more than that found in the general child population children across the world as well as in India, which in turn suggests the need of special care needed for these children and adolescents, especially in mental health.

Keywords: Adolescents, Childcare homes, Mental health, Social justice

INTRODUCTION

Mental disorders are common, affecting more than 25% of all people at some time during their lives. These disorders are present at any point in time in about 10% of the adult population. Around 20% of all patients seen by primary health care professionals have one or more mental disorders. Mental and neurological disorders accounted for 10% of the total DALYs lost due to all diseases and injuries, are projected to increase to 15% by 2050.[1] Lifetime prevalence estimates of any mental disorder according to the World mental health surveys ranges from 18.1-36.1%.[2] Precursors of adult mental disorders can be detected in children and adolescents. With many children and adolescents growing in detrimental environments and subjected to abuse and mistreatment of many kinds, there needs to be an appropriate response by societies based on reliable information. Worldwide literature has shown that onset of common mental disorders occurs in childhood and adolescence. Though the prevalence figures vary considerably between studies, it seems that 10-20% of all

children have one or more mental or behavioural problems.[1] Survey by NIMHANS shows that the overall lifetime prevalence of mental disorders was found to be nearly 13.7%.[3] A study done by India State-Level Disease Burden Initiative Mental Disorders Collaborators in 2016 showed a prevalence of 14.3% for any mental disorders in adult population.[4]

In India, the total number of children in the age group 0-14 years contributes to 30.9% of total population of the country. The adolescent population constitutes a quarter of the country's population which is approximately 243 million which in turn constitutes 20% of the world's 1.2 billion adolescents.[5] About half of all lifetime mental disorders begin before the age of 14 years.[6] Childhood and adolescence being developmental phases, it is difficult to draw clear boundaries between phenomena that are part of normal development and others that are abnormal.[7] The prevalence of childhood and adolescent mental disorders in India is around 12.2%.[1,8] The prevalence shows a wide variation from 6.46% (95% CI: 6.08% to 6.88%) in community-based studies and to 23.33% (95% CI: 22.25% to 24.45%) in school-based studies.[6] Studies suggesting prevalence of childhood mental and behavioural disorders in Kerala is negligible. A study done in 1998 at Calicut district in school children suggested that the prevalence of 9.4% (95% CI: 7.9% to 10.8%).[9]

A variety of factors determine the prevalence, onset and course of mental disorders including social, economic and demographic factors such as sex and age, serious threats such as conflicts and disasters, the presence of major physical diseases, family environment, and emotional environment which can be broadly divided into child characteristics and characteristics of his/her parents/family.[1] Literature suggests evidence linking mental disorders like emotional problems, conduct disorders, hyperactivity etc. in children with delinquency.[7,10] The term juvenile delinquency applies to violation of criminal code and certain patterns of behavior that are not approved for children and young adolescents. The factors influencing delinquent behavior were found to be individual factors like antisocial behavior, emotional factors, poor cognitive development etc.; family factors like parenting, maltreatment, broken family etc.; and peer factors like deviant peers, peer rejection and school and community factors like neighbourhood disadvantage, access to weapons etc. Most of these factors were found to be common for both juvenile delinquency and childhood mental disorders.[11] Children with mental health problems are often first seen and first treated in the education, social justice, or juvenile justice systems. A great many problems of youth are identified in the education sector and these problems may or may not get recorded as mental health problems or needs. As these services are often under the jurisdiction of ministries other than health it is difficult to collect and aggregate this disparate data and correlate it with individual or community need for health services.[7]

In India, the children in need of care and protection & conflict with law according to Juvenile Justice Act, 2000 is institutionalized in children's and observation homes under Social Justice Department. Hence, assessing the mental health status and estimating the prevalence of mental disorders among these children and adolescents is important.

METHODS

A cross sectional study was conducted among the inmates of childcare homes under the Social Justice Department, Government of Kerala. There are mainly three types of childcare institutions or homes under the Social Justice Department of Government of Kerala. These include children's home, observation homes, and special homes. Children's home aims at the ultimate welfare of the children who are in need of care and protection under the Juvenile Justice (care and protection of children) Act.[12] There are six children's home for boys and two for girls in the state. Observation homes are meant to temporarily accommodate children below 18 years who are in conflict with law, for a maximum time period of six months. These homes for boys are set up in all 14 districts except Idukki. Only one observation home for girls has been set up in the state which is at Kozhikode. These homes have a capacity of maximum to accommodate 50 children. Special homes are meant for social rehabilitation of children in conflict with law as a last resort. There are two such homes are in the state, one in Thiruvananthapuram for boys and the other one at Kozhikode for girls.[13]

The cluster sampling technique was chosen, as the childcare institutions had a heterogeneous distribution across different districts. Also, the sampling frame for random sampling technique was not obtainable for the whole state, as this information is classified as per the law. Each individual district was fixed as clusters. Out of the 14 districts in the state, five districts were randomly selected, which included Kozhikode, Ernakulam, Thrissur, Kollam, and Thiruvananthapuram. The childcare homes in each cluster were included in the study. All the eligible children in the cluster during the visit were included to obtain the sample size. The sample size was estimated using the expected prevalence as 53.3% according to a study done by Dr. G.S. Sameeran and Dr. Resmi R. in Government children's home, Poojappura, Thiruvananthapuram.[14] Giving 10% allowance for non - respondent rate and multiplying with a design effect of 2, the final sample size was fixed at 200. The children and adolescents who did not give consent, who are seriously ill at the time of study and those, who are not able to comprehend the questionnaire were excluded from the study. Ethical clearance was obtained from the Institutional Ethics Committee before the commencement of the study. Privacy and confidentiality of all the information obtained was maintained during all stages of the study. After obtaining informed written consent from the superintendents of

respective childcare homes, written informed assent was obtained from each study participant. The data was collected from all the eligible participants using a pre-tested semi structured questionnaire to assess socio demographic and lifestyle factors, and Strengths and Difficulties Questionnaire (SDQ) in local language was used to assess the mental health. The semi structured questionnaire used was administered by the interviewer, while the SDQ was a self-reported version.

Table 1: Categories based on the scoring in Strengths and Difficulties Questionnaire (SDQ).

Categories	Normal	Borderline	Abnormal
Total difficulties score	0-15	16-19	20-40
Emotional problems 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
Impact score	0	1	2-10

The semi structured questionnaire included variables such as age, gender, education (grade in which the child studies), type of schooling obtained (categorized as institution-based schooling, open schooling, and no schooling) and type area of residence (categorized as rural and urban) for getting information on baseline characteristics of the study population. Factors including those related to parental family and lifestyle were also collected. Family factors included mainly parental status, type of family, number of members in the family and number of siblings to the child. Lifestyle factors included use of any addictive substance, including tobacco (both smoked and smokeless) use, and alcohol use, details regarding friends, time spent with friends and other leisure activities. The mental health assessment in this study was done using Malayalam version of self-administered questionnaire named as strengths and difficulties questionnaire (SDQ). It is a brief behavioural screening questionnaire available in different versions for children and adolescents of age group ranging from 4-17 years. It consists of 25 questions which is designed to identify the children with mental health difficulties and 5 questions to assess the impact score of the children (Table 1). The SDQ version of age group 11-17 years is used in the study. The extended version of SDQ assesses the impact of the disorder on the child. The impact score was also categorized into three namely, normal, abnormal, and borderline.[15-18] Based on SDQ, the mental health problems can be classified broadly into 2 domains, namely externalizing and internalizing behaviour. Externalizing behaviour includes conduct problems and hyperactivity, while internalizing behaviour includes emotional and peer problems.[19,20] There is also another category called as prosocial behaviour which measures the social behaviour of children.[15] The cut off for externalizing and internalizing scores has not been defined like in the above mentioned 4 group classification. This classification was also used for the analysis.

The data was entered into Microsoft Excel and analyzed using SPSS trial version 16.0. Quantitative variables with normal distribution are expressed as mean and standard deviation. All categorical variables were expressed in proportions. The outcome variable namely mental health morbidity was expressed as proportion (prevalence) with 95% confidence limits. In order to determine factors associated with mental health morbidity, the three categories of outcome variable namely normal, borderline and abnormal were reduced to two categories by combining the borderline and abnormal categories. The statistical test for determining the association of the outcome variable with quantitative variables was done using independent t-test, while that with categorical variable was done using Chi-Square test. The strength of association was expressed with odds ratio. If any of the cells in contingency table had expected values less than the 5, continuity correction was used in place of chi square test. All tests were interpreted at a significance level of 95%. Binary logistic regression was used to find out the independent predictors of the outcome. All the factors which had a p value less than 0.2 in bi-variable analysis were used to create regression model. The adjusted odds ratio with its confidence interval obtained in the final regression model was taken as the strength of association for final interpretation.

RESULTS

A total of 211 children aged between the age group 11 and 17 years meeting the inclusion criteria were approached, and informed assent could be obtained from 201 children, giving a non-respondent rate of 4.7%. Baseline characteristics of the study participants are as shown in the Table 2. Out of the 201 children, 25 (12.44%) reported to have used tobacco, alcohol, or any other substances at least once and five of them reported to have used pan masala, smokeless tobacco, or ganja.

The median SDQ total score of the study participants was 15 (11, 21). Although SDQ scores can be taken as continuous variables, the bandings of abnormal, borderline and normal was used. The distribution of the study participants based on their SDQ score category and the gender wise distribution among the study participants is given in (Table 3). The prevalence of mental health morbidity was estimated as 33.3% (95% CI: 26.86%-40.31%) in the study population. There were 32 (15.9%) study participants with borderline SDQ score and the children in normal category among the inmates accounted for 50.8%. 45.8% of the males belonged to the abnormal or borderline category as compared to 54.3% of the

females. Among the male children, 54.2% belonged to normal category while among females only 45.7% belonged to the same. When compared with males, proportion of females belonging to categories borderline (18.5%) and abnormal (35.8%) were more though the difference was not statistically significant. The median externalizing symptoms score was 8 (5, 10) and median internalizing score was 8 (5, 11). The distribution of externalizing and internalizing symptoms scores and prosocial behaviour score is given in (Table 4).

Table 2: Baseline characteristics of the study participants (n=201).

Baseline characteristics		Frequency (%)
Age of the child (years)	Mean age (SD)	14.4 (1.8)
Gender of the child	Male	120 (60)
	Female	81 (40)
Type of schooling	No schooling at present	4 (2.0)
	Open schooling	12 (6.0)
	Institutionalized schooling	185 (92.03)
Education status of the child	No schooling	3 (1.5)
	Lower primary	14 (7.0)
	Upper primary	94 (46.8)
	High school	62 (30.8)
	Higher secondary and others	26 (12.9)
	Others	2 (1.0)
Residence	Do not know	23 (11.4)
	Rural	153 (76.2)
	Urban	25 (12.4)
Religion of the child	Do not know	10 (5.0)
	Hindu	148 (73.6)
	Christian	30 (14.9)
	Muslim	13 (6.5)
Relationship status of the parents	Together	101 (50.2)
	Orphaned	24 (11.9)
	Single functioning parent	76 (37.8)
Friends	Yes	192 (95.5)
	No	9 (4.5)
Spending time with other residents or for leisure activity	Yes	185 (92)
	No	16 (8)
Type of family	Not known	21 (10.5)
	Nuclear	121 (60.2)
	Joint/extended	59 (29.4)
Family size	Small family (≤4)	91 (45.3)
	Large family (>5)	110 (54.7)
Siblings	No. of siblings (0-1)	91 (45.3)
	No. of siblings ≥2	110 (54.7)

Subcategorization into five domains which is more commonly used in hospital-based setting showed that, out of the 201 children, 59 (29.4%) had emotional problems, 62 (30.8%) had conduct problems, 26 (12.9%) had hyperactivity, 30 (14.9%) had peer problems, and 11 (5.5%) had abnormal prosocial behaviour. The distribution of study participants based on types of mental health problems is shown in (Figure 1). The gender wise distribution of SDQ scores according to categorization of the domains are given in the (Table 4). The gender-wise distribution of mental health problems according to subcategories of domains is shown in (Table 5).

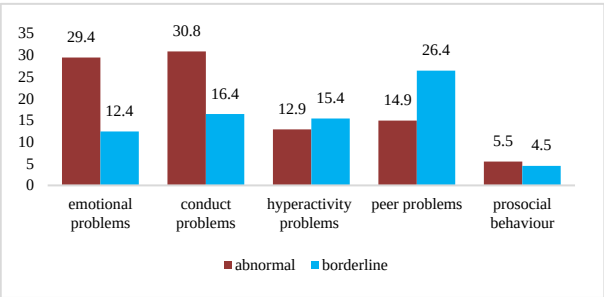

Figure 1: Distribution of study participants by subcategorization into 5 domains of mental health problems according to SDQ (n=201).

Table 3: Proportion of study participants based on SDQ score (n=201).

SDQ score	Categories based on the score	N (%)	Males (%)	Females (%)
0-15	Normal	102 (50.8)	65 (54.2)	37 (45.7)
16-19	Borderline	32 (15.9)	17 (14.2)	15 (18.5)
20-40	Abnormal	67 (33.3)	38 (31.7)	29 (35.8)

Table 4: The distribution of externalizing and internalizing symptoms score along with prosocial behaviour score among the study participants (n=201).

Domains of mental health morbidity	SDQ Score Median (IQR)		
	Overall	Male	Female
Externalizing symptoms score	8 (5,10)	8 (5,10)	7 (5,10)
Internalizing symptoms score	8 (5,11)	7.5 (5,10)	9 (6,12)
Prosocial behaviour score	8 (7,10)	9 (7,10)	8 (7,9)

The extended version of SDQ assesses the impact of the disorder on the child. The impact score was also categorized into three, namely, normal, abnormal and borderline. Out of the 99 children categorized into borderline and abnormal categories based on SDQ total score, 38 (38.4%) children had abnormal impact score and 9 (9.1%) children had borderline impact score. The distribution of categories based on impact score.

Bivariable analysis followed by binary logistic regression was done to find out the factors associated with mental health problems in children when compared to normal children. All the factors which had a p value less than 0.2 in bi-variable analysis were used to create regression model. Results of bivariable analysis to determine the factors associated with mental health morbidity are given in (Table 6). As evident from (Table 7) the significant predictors of mental health in the final regression model were 'like to spend time with friends', current or previous use of tobacco and size of the family; with adjusted OR (95%CI) being 0.116 (0.025-0.532), 4.416 (1.525-11.275) and 1.956 (1.077-3.552) respectively. The R^2 value of the model was 15%.

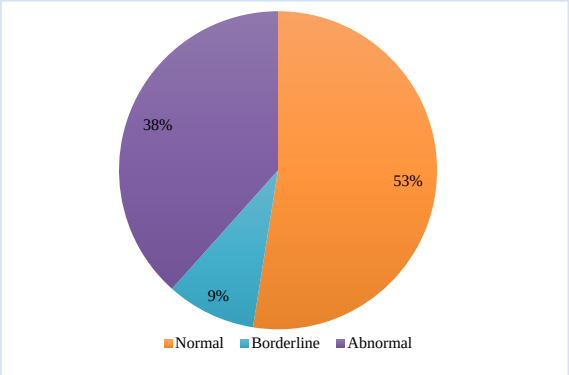

Figure 2: Pie diagram showing the categorization based on impact score (n=99).

Table 5: Gender wise prevalence according to subcategories of domains of mental health morbidity.

Domains of mental health morbidity	Overall n=201	Male n=120	Female n=81
	N (%)	N (%)	N (%)
Emotional problems	62 (30.85)	34 (28.3)	28 (34.6)
Conduct problems	30 (14.93)	14 (11.7)	16 (19.8)
Hyperactivity problems	26 (12.94)	18 (15)	8 (9.9)
Peer problems	62 (30.85)	34 (28.3)	28 (34.6)
Prosocial behaviour	11 (5.47)	5 (4.2)	6 (7.4)

Table 6: Results of bivariable analysis to determine the factors associated with mental health morbidity.

Variables		Mental health (n=201)		P value	OR (95% CI)
		Normal	Abnormal		
		N (%)	N (%)		
Age of the child	Mean age (SD) (years)	14.4(1.8)	14.4(1.8)	0.993	-
Gender of the child	Male	65(63.7)	55 (55.6)	0.238	1.41 (0.80-2.48)
	Female	37(36.3)	44 (44.4)		
Type of schooling	Open schooling / no schooling	7 (6.9)	9 (9.1)	0.560	0.74 (0.26-2.06)
	Institutionalized schooling	95 (93.1)	90 (90.9)		
Education status of the child	No schooling or lower primary	6 (5.9)	11 (11.1)	0.247	-
	Upper primary	45 (44.1)	49 (49.5)		
	High school	33 (32.4)	29 (29.3)		
	Higher secondary and others	18 (17.6)	10 (10.1)		

Continued.

Variables		Mental health (n=201)		P value	OR (95% CI)
		Normal	Abnormal		
		N (%)	N (%)		
Residence	Do not know	10 (9.8)	13 (13.1)	0.539	-
	Rural	81 (79.4)	72 (72.7)		
	Urban	11 (10.8)	14 (14.1)		
Religion of the child	Do not know	6(5.9)	4 (4.0)	0.803	-
	Hindu	73(71.6)	75 (75.8)		
	Christian	17(16.7)	13 (13.1)		
	Muslim	6(5.9)	7 (7.1)		
Tobacco use	Ever used	6 (5.9)	18 (18.2)	0.013	3.56(1.35- 9.38)
	Never used	96 (94.1)	81 (81.8)		
Alcohol	Ever used	3 (2.9)	8 (8.1)	0.109	2.90 (0.75-11.27)
	Never used	99 (97.1)	91 (91.9)		
Friends (perceived)	Yes	101 (99.0)	91 (91.9)	0.036	0.12 (0.014-0.92)
	No	1 (1.0)	8 (8.1)		
Spending time with friends	Do not like	2 (1.9)	14 (14.1)	0.003	0.12 (0.03-0.55)
	Likes	100 (98.1)	85 (85.9)		
Marital status of the parents	Together	54 (52.9)	47 (47.5)	0.719	-
	Orphaned	11 (10.8)	13 (13.1)		
	Single functioning parent	37 (36.3)	39 (39.4)		
Type of family	Not known	6 (6.5)	6 (7.0)	0.978	-
	Nuclear	57 (62.0)	52 (60.5)		
	Joint	29 (31.5)	28 (32.6)		
Household size (no. of members in the household)	Small (upto 4)	48 (52.2)	29 (33.7)	0.020	2.14 (1.17-3.93)
	Large (>4)	44 (47.8)	57 (66.3)		

Table 7: Factors which are associated with mental health morbidity after binary logistic regression.

Variables	P value	Adjusted OR	95% CI
Like to spend of time with friends	0.006	0.116	0.025 - 0.532
Current or previous use of tobacco	0.005	4.146	1.525 - 11.275
Household size (large i.e.> 5 members)	0.028	1.956	1.077 - 3.552

DISCUSSION

The prevalence of mental health morbidity among the inmates of the childcare homes under the Social Justice Department of Government of Kerala was estimated to be 33.3% (95% CI: 26.86% to 40.31%) using SDQ according to this study. The prevalence shows a wide variation in the studies across the world. This variation can be attributed to different ethnicities, age distribution and the tools used to assess mental health. There have not been much published studies from pertaining to children in special care homes. A systematic review and meta-analysis by Bronsard et al had found that one among two has current mental disorders among children and adolescents under child welfare system.[21]

The prevalence in the current study is more than that found in general child population in across the world as well as in India. The worldwide prevalence of mental disorders in the children and adolescents is around 20% as reported by WHO.[22] A study done in Chennai using the same tool to assess the mental health in children and adolescents from India, had reported a prevalence of only 17%.[23] In a meta-analysis done in 2014, estimated that the average prevalence as 6.46% (95% CI: 6.08% to 6.88%) for the community-based studies and 23.33% (95% CI: 22.25% to 24.45%) for the school-based studies.[6] The wide variation observed in the current study can be due to the specific nature of our study population. The children in the childcare institutions under Social Justice Department included are mostly mainly the children in need of care and protection and children in conflict with law according to the Juvenile Justice Act, 2000.[12] These are the children of vulnerable population and are of families of socio-economic disadvantage.[12,24] The parental care and family support is necessary for the mental health development in children and adolescents.[1,22,25] The poverty or socio-economic deprivation is a major risk factor in development of mental disorders.[1] The current study could not explain whether these children's mental health is affected due to their living conditions in the childcare homes. Among the male children, 54.2% belonged to normal category while among females only 45.7% belonged to the same. When compared with males, proportion of females belonging to categories borderline

(18.5%) and abnormal (35.8%) were more though the difference was not statistically significant. Based on SDQ, three domains of mental health morbidity could be identified namely, externalizing disorders, internalizing disorders and peer problems.

The median score of internalizing symptoms were higher among females and while median externalizing symptom score was higher among males. Categorization based on subdomains of mental health problems showed that conduct problems (30.8%) were more prevalent followed by emotional problems (29.4%) and peer problems (14.9%). This was similar to the pattern seen in the study done by Sreenivasan et al in which 22.6% had conduct problems while emotional problems and peer problems were 12% and 12.9% respectively.[23] The higher prevalence of emotional problems in the study population as compared with general child population might be due to absence of care and family support, and as well as increased exposure to stressful life events.[26-28] Generally, in children and adolescents, the most common group of disorders are oppositional-defiant disorder and conduct disorder, which is closely followed by anxiety disorders.[25] A similar pattern is found in this study population also.

The factors that were obtained as having significant association after multivariable analysis were family size, tobacco use and spending of time with other residents or friends. The proportions of joint families were only 29.4 % while the proportions of large families were 54.7%, which shows that a major group among the large families were nuclear families with more than two children. Increase in the number of the siblings in the family might have resulted in decreased family support and care, negligence from the parents, and financial constraints for the parents, which in turn would have been the reasons for those children being admitted in these childcare institutions and would have resulted in abnormal mental health.

Though the increase in the number of the siblings is the reason for the increase in the family size, it was not obtained as a statistically significant risk factor. Different studies have shown increase in number of siblings as a statistically significant risk factor for mental health disorders in children especially conduct disorders and mental retardation.[29,30] Lifetime use of tobacco, both smoked and smokeless tobacco was found as a significant risk factor in multivariable analysis while current or previous use of alcohol was not obtained as a significant risk factor. This result was similar to the study conducted in Australia by Sawyer et al, 2001.[31] The preference to spend time with friends or other residents was included as a variable as a part of understanding their lifestyle. This was found to be statistically significant protective factor associated with mental disorders. Similar finding was seen in the study done by Balaji et al, 2013.[32] In the current setting, time spent with friends or other residents might be indirectly reflecting the social behaviour and peer relations of the child. There is evidence from the literature that positive peer relations moderate the relation between the family diversity and adjustment or externalizing behaviour of the child.[33,34] Given the fact that children in these institutions were in one way or other victims of negligence from family or community due to varied reasons, the good peer relations might have acted as a moderator in developing a positive mental health in the children.[23,24,35] Children with poor mental health are reported to have more peer problems and adjustment difficulty, which may also result in deviant behaviour.[25] Child mental health is a subject less deliberated by the scientific community of Kerala. This study could bring out the burden of mental health morbidity among the inmates of childcare institutions under Social Justice Department, Government of Kerala. As these children belong to vulnerable population and are at risk of exposure to chaotic environments and mistreatment, the estimation of burden of mental health problems showed the importance of social care needed for these children. SDQ being a screening tool for assessing mental health, the findings needed further confirmation by a standard diagnostic method or an expert psychiatrist; this could not be included due to resource constraints.

CONCLUSION

The children of these institutions, as compared to general population, should be taken more care especially, in case of mental health. Legislations and policies to ensure adequate mental health care need to be implemented. Health programmes related to child mental health in general population and vulnerable population as well as in general population should be launched. Further research is necessitated to get more insight knowledge on the factors predicting the mental health in the study population.

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