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Assessment of determinants of behavioral problems among primary school children in Mangalore city of South India

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Abstract

The primary aim of this study addresses a key question relating to the identification of the determinants of behavioral problems among primary school children. The secondary aim was to suggest remedial measures among teachers on how to deal with behavioral problems among students. An assessment of students studying from Class 2 to 5 was taken by the teachers using the Rutter Children Behavior Questionnaire to identify the ones with behavioral problems. Determinants of behavioral problems were identified using a self-administered questionnaire filled by the mothers of these children. Finally discussion on various findings of this study were done among the primary school teachers through a focus group discussion. Suggestions on how to deal with these problems were given to the teachers. Out of the 750 students who took part in this study, 65(8.7%) were identified by their teachers to have behavioral problems. Children whose biological parents were not currently married, those reported to have undergone physical harm routinely as a disciplinary measure, those with maternal history of inadequate diet during the related antenatal period and those belonging to nuclear families had behavioral problems in multivariable analysis. Adequate nutritional care need to be taken during early developmental years and correct disciplinary methods need to be advised to prevent behavioral problems among children.

Keywords Behavioral problems · Determinants · Primary school children

Introduction

Mental disorders feature among the most common causes of non-fatal morbidities in India. These disorders were present among 197·3 million (95% UI 178·5–216·4) people, comprising 14·3% of the total population of India in 2017 (India State-Level Disease Burden Initiative Mental Disorders Collaborators, 2020). The prevalence rate of psychiatric disorders among children and adolescents in India were reported to be 6.46% (95% CI 6.08% - 6.88%) in the community and 23.33% (95% CI 22.25% - 24.45%) in the schools (Malhotra & Patra, 2014).

Mounting pressure among children to achieve success, smaller families and rapidly changing sociocultural paradigm, have resulted in the rise of behavior problems (Prakash, Mitra, & Prabhu, 2008). Behavioral problems create a chaotic environment in the classroom, which disturbs the learning process of all the students including that of the interferer (Joshi, Gokhale, & Acharya, 2012). Disproportionate amount of time is spent by teachers in dealing with these problems. This compromises the quality time spent by them on academic activities. The teachers' authority and ability to control the class also gets compromised when other students start imitating the ones with behavioral problems. Prior researchers had observed that misbehavior on the part of students made the teachers feel rejected. These teachers lost their affection towards misbehaving students which badly affected the teacher-student relationship (Nurmi & Kiuru, 2015).

Students with behavioral problems have their own issues. They often avoid doing routine academic work,

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due to the fear of doing mistakes that would demonstrate their low ability. They are often scared of being criticized and often perceive a threat to self-worth (Joshi et al., 2012). Hence, it becomes important to identify children with behavioral problems and suggest suitable measures to correct them.

The success of any behavioral intervention lies in the identification of the antecedents of behavioral problems. This information will help to tailor effective intervention strategies in response to individual student needs (Joshi et al., 2012).

Teachers in developing countries are often not trained to manage students with behavioral problems (Negatives of disruptive behavior in the classroom, 2015). Teachers trained in the right way can build a stable relationship with students that would moderate the adverse effects of negative experiences among the latter (Mash & Wolfe, 2001). As teachers monitor several students on a daily basis at schools, they are in a better position than parents to identify behavioral problems at an early stage. Johnston, Propper, Pudney, and Shields (2014) therefore reported teacher's assessment to be the most reliable, followed by parent's and children's reports. Students with behavioral issues too can easily approach them for seeking any assistance.

The information regarding the prevalence of behavioral problems in the Indian context is very limited. Prior studies done in India had several limitations such as small sample size (Barman & Khanikor, 2018; Naik, 1994; Taj & Agalya, 2014), age interval not representative of the entire student population in primary schools (Bansal & Barman, 2011; Deivasigamani, 1990; Gupta, Verma, Singh, & Gupta, 2001) and determinants of behavioural problems not being comprehensively assessed (Barman & Khanikor, 2018; Gupta et al., 2001; Gupta, Mongia, & Garg, 2017; Naik, 1994; Taj & Agalya, 2014).

Hence, this study was done to find out the determinants of behavioral problems among primary school children.

The investigators hypothesized that there was significant association of socio-demographic factors, unfortunate events during early developmental years, ecological factors concerning family and neighbourhood and the nature of parenting styles with behavioral problems among children.

Additionally, suggestion of remedial measures to teachers on how to deal with behavioral problems among students was also focussed in this study.

Materials and Methods

Design of the Study

This cross sectional study was done at four government and two private primary schools in Mangalore city in the months of August and September 2018.

Recruitment and procedure

These schools were selected using simple random sampling method. The permission to conduct the study at the government schools was given by the Block Education Officer of Mangalore. Subsequently, permission was also taken from the principals of the respective private and government schools.

Population.

The sample size of 673 students was calculated using the formula $Z\alpha^2pq/d^2$ at 95% confidence interval and 80% power. "p" was taken as 12.5% based on the report by Srinath et al. (2005), as the proportion of children with mental disorders. Adding a non-response rate of 10%, the final sample size was rounded off to 750 students. The primary school children who were under the same class teacher for at least one year were included in this study. Else the teachers might not have understood their students well, in order to assess them accurately for behavioral problems. Students studying in first standard and those whose names were on roll but who had left the school were excluded from the present study. Also students who were known to have any neurological disorders or chronic physical illnesses as stated in their school health register were excluded.

Participants

A total of 750 primary school children took part in this study. Among them, 494(65.9%) were from private schools and 256(34.1%) were from government schools. The parents of 602 children returned satisfactorily filled up forms.

The mean age of the students ($n = 599$) was 8.75 ± 1.55 years and it ranged from 6 years to 13 years. Three parents did not report the age of their child in the questionnaire.

The number of boys were 390(64.8%) and girls were 212(35.2%). Religion was known among 527 children. Among them, Hindus were 298(56.5%) and Muslims were 228(43.3%). One was a Christian. Type of family was known among 586 children. Among them 412(70.3%) were from nuclear families and 174(29.7%) were from joint families. SES could be assessed among 435 children. Among them, 171(39.3%), 77(17.7%), 78(18%), 74(17%) and 35(8%) were from the Class 1 to 5 SES respectively. Place of stay was known among 581 children. Among them, 119(20.5%) children resided in rented houses, 190(32.7%) in rented flats and 272(48.8%) in their own houses.

Measures

The study was conducted in three stages. In the first stage, the class teachers of primary school children from 2nd to 5th standard were approached. They were explained the nature

and purpose of the study. Written informed consent were taken for their participation.

Instrumentation

All consenting teachers were requested to fill the Rutter Children Behavior Questionnaire (Rutter, 1967) for each pupil in the class. This screening instrument assesses a child's classroom behavior. It consists of 26 items which is easy to fill by self. According to the behavior described in the statement of each item, a score of 2 was awarded when the teacher felt that the said behavior certainly applies to the pupil, a score of 1 was awarded when it somewhat applies, and a score of zero when it does not apply. The minimum attainable score was zero and the maximum was 52. Any child scoring a cumulative score of 10 or above was classified as a child with behavioral problems (Iloeje, 1992). This scale is applicable to both boys and girls aged above five years.

RCBQ was first validated in a study done in London, England. In that study, re-test reliability was assessed by getting four teachers rate eighty primary school children on two occasions with a gap of two months interval. The product moment correlation between scores were found to be 0.89. The same English study tested inter-rater reliability by getting four teachers rate seventy primary school children. After a gap of two to three months four other teachers rated the same children using RCBQ. The product moment correlation between scores were found to be 0.72. The discriminative power of the scale was tested by comparing the scores of 86 school age children chosen randomly among the residents of Aberdeen, England with 34 children of the same age group but with behavioural disorders attending a psychiatric clinic in the same city. The scale was efficient in differentiating children of the two groups even though the teachers were unaware in many cases in the latter group that they were attending psychiatric clinics. Moreover about 90% of children newly diagnosed with antisocial behaviour clinically, had agreement with questionnaire based diagnosis made by the teachers using RCBQ (Rutter, 1967). In the current study, the Cronbach's alpha value of internal consistency of RCBQ was found to be 0.889 indicating good reliability.

In the second stage, a self-designed questionnaire was used to assess the determinants of behavioral problems among primary school children. It was prepared with the help of literature search and with consultation from subject experts. The investigators sent this questionnaire along with the consent form for participation to the parents, through their children. If parents agreed to participate, the mother of the child was invited to fill the questionnaire.

Procedure.

An information sheet explaining the details and purpose of the study, name and contact information of the chief researcher for seeking any clarification, was also provided. The questionnaire was anonymous, thereby ensuring confidentiality of the information provided. However, to link the teachers' report and the parents' report of each child correctly, the serial number of the student assigned in the school attendance roll was stated on all the forms. The questionnaire was content validated by experts from the Department of Psychiatry. It was translated into the local language Kannada and was validated by back translation before its use for data collection. Pre testing of this questionnaire was done among a group of ten parents who were not included in this study. Cronbach's alpha value for reliability of the self-administered questionnaire was found to be 0.825 indicating good reliability. The questionnaire enquired about socio demographic details of the family members, events related to early developmental years in the child such as relevant ante natal, intra natal and post-natal history and history of early childhood illnesses and familial history of illnesses. In relation to ecological factors, the self-rated living conditions, history of domestic violence or substance abuse in the family and risk factors in the neighbourhood were enquired. Finally, questions related to parenting styles and the average time spent by parents with their children on week days and on a week end were also enquired. In the third stage, a focus group discussion (FGD) was conducted among primary school teachers at each school. Before the start of FGD, a psychiatric social worker gave a talk to the teachers for about 20 min, using power point slides, regarding identifying features of behavioral problems among children and its consequences in later life. The data from Stage 1 and Stage 2 of the study were presented using power point slides. Then, the FGD was conducted taking into consideration various findings of this study. This session lasted for approximately two hours. The teachers shared their personal experiences with dealing of behavioral problems among children. The investigators, at the end, shared likely solutions to various issues which came out of this discussion. They also gave the teachers information regarding whom to be approached at the hospitals for further clarifications and assistance.

Socio economic status (SES) of the families of the school children were assessed using Modified BG Prasad Classification of 2018.

Data Analysis/ Statistical Analysis

Data were entered and analysed using IBM SPSS for Windows version 25.0, Armonk, New York. Descriptive statistics and statistical tests like Chi square test, Fishers exact test and unpaired t test were applied for univariate analysis. Multivariable analysis using binary logistic regression was performed to identify independent determinants of behavioral problems among children. All determinants significant at 0.15 level qualified for entry in the multivariable model, and were subsequently excluded using a stepwise elimination procedure to identify the independent determinants. p value less than 0.05 was taken as cut off for statistically significant association.

Ethics Statement

Institutional Ethics Committee clearance was obtained before the start of the study. The approval number was IEC KMC MLR 04–18/71 dated 18th April, 2018. Written informed consent to participate was taken from the parents and assent for participation was taken from the school students.

Results

Behavioral problems were reported among 65(8.7%) out of 750 students by their teachers. Among socio-demographic factors, only the age was associated with presence of behavioral problem among children. It was present among 36(12.6%) of 286 children aged ≤8 years compared to 19(6.1%) out of 313 children aged >8 years (X^2 = 7.61, p=0.006). Out of 390 boys, 39(10%) had behavioral problems while out of 212 girls, 15(7.1%) had behavioral problems ($p = 0.23$). (Table 1).

Mean age of boys ($n = 39$) with behavioral problems was 8.2 ± 0.8 years in comparison to mean age of 9.1 ± 2.2 years among girls ($n = 15$) with behavioral problems ($t = 2.117$, $p = 0.039$). There was no association of SES (p = 0.405), history of absence of spontaneous cry soon after birth (p = 0.413), gestational age at the time of delivery (p = 0.425), birth order (p = 0.868), number of siblings (p = 0.853), history of not eating well at home (p = 0.477), history of frequent difficulty with sleep (p = 0.97), history of snoring at night (p = 0.518), history of socially withdrawn behavior (p = 0.699), history of any major emotionally traumatic experience during early childhood (p = 0.855) and history of stealing things at home (p = 0.760) among children with behavioral problems among them. The mean birth weight did not differ significantly with the presence or absence of behavioral problems among children (p = 0.494). Unfortunate events during early development years like inadequacy of diet during the related antenatal period of the mother was associated with behavioral problems in the child. After excluding the "not sure" responses, the p value was found to be 0.006 (Table 2).

However other maternal determinants like history of medical problems during pregnancy ($p = 0.702$), history of depression during pregnancy ($p = 0.571$), history of depression during post-natal period ($p = 0.634$), working status during preschool years of the child ($p = 0.92$), history of frequent job transfers ($p = 0.869$), time spent with the child on an average on any usual day ($p = 0.525$) and time spent with the child on an average on a weekend ($p = 0.67$) were not associated with behavioral problems among children.

Paternal determinants like educational status of the father ($p = 0.517$), history of alcoholism ($p = 0.81$), frequency of alcohol consumption in a week ($p = 0.722$) and time spent with the child on an average on any usual day ($p = 0.771$) were also not associated with behavioral problems among children.

Out of 165 mothers who were working during the preschool years of their children, three did not mention their family type. Out of the remaining 162, 121(74.7%) were from nuclear families.

Ecological factors like nuclear family ($p = 0.006$) and increased periodicity of domestic violence ($p = 0.041$) were associated with behavioral problems among children (Table 3).

Faulty parenting styles like routine history of child being physically harmed when disobedient were also associated with behavioral problems among children ($p = 0.005$). (Table 3).

Ecological/familial determinants like type of house ($p = 0.638$), history of physical illness among parents ($p = 0.901$), history of mental illness among parents ($p = 0.384$), family history of psychiatric diseases ($p = 0.595$), history of crime/convictions among family members ($p = 0.303$), history of increased crime in the neighbourhood (p = 0.3), absence of children of similar age group residing near place of stay ($p = 0.599$), history of physically or emotionally unstable siblings in the family ($p = 0.834$), history of child suffering physical harm routinely in the hands of other siblings ($p = 0.874$), history of child being physically harmed routinely for not doing academic home assignments ($p = 0.381$), history of over affection by the parents causing child to feel hassled in their absence ($p = 0.459$), and history of child being brought up in an over protective environment ($p = 0.445$) were not associated with behavioral problems among children.

Similarly, out of the 38 families with history of divorced/remarried/deceased/separated - marital status among the parents, information on type of family was available among 36 families. Out of these, 21(58.3%) belonged to nuclear families.

Among families with history of divorced/remarried/deceased/separated - marital status, 7(25.9%) out of 27, gave history of domestic violence. Among families where both biological parents were staying together, 60(13.5%) out of 446, gave history of domestic violence ($X^2 = 3.258$, $p = 0.071$).

A total of 11 variables which were associated in univariate analysis with behavioral problems at probability value 0.15 or less, qualified for entry in the multivariable analysis model. These variables were age of the child ($p < 0.001$), birth weight ($p = 0.133$), religion ($p = 0.114$), educational status of the mother ($p = 0.113$), history of inadequacy of diet during the related gestation period in the mother (after excluding the "not sure" responses) ($p = 0.006$), type of family (p = 0.006), marital status of the parents ($p = 0.063$), history of domestic violence at home as a substitute for frequency of domestic violence at home ($p = 0.041$), routine history of child being physically harmed when disobedient ($p = 0.005$), history of child being pampered ($p = 0.149$) and family history of medical illness (after excluding the "not sure" responses and by applying fishers exact test) ($p = 0.15$).

Table 1 Association between determinants pertaining to primary school children and presence of behavioral problems among them

Characteristics	Behavioral Problems		Total
Age (n=599)	Present	Absent	
6	3(20)	12(80)	15
7	6(4.8)	119(95.2)	125
8	27(18.5)	119(81.5)	146
9	8(5.4)	141(94.6)	149
10	4(4.4)	87(95.6)	91
≥11	7(9.6)	66(90.4)	73
			X^2=25.3, p<0.001
Gender (n=602)			
Males	39(10)	351(90)	390
Females	15(7.1)	197(92.9)	212
			X^2=1.439, p=0.230
Status of birth weight (n=557)			
VLBW	1(14.3)	6(85.7)	7
LBW	5(5)	96(95)	101
NBW	46(10.4)	395(89.6)	441
Big baby	0(0)	8(100)	8
			X^2=2.262, df=1, p=0.133
Current history of bed wetting (n=569)			
Yes	4(16.7)	20(83.3)	24
No	48(9)	484(91)	532
Not sure	2(15.4)	11(84.6)	13
			X^2=2.100, p=0.350
Age group of stoppage of bed wetting (n=514)			
Less than 5 years	40(10.1)	358(89.9)	398
5 years and above	8(6.9)	108(93.1)	116
			X^2=1.055, p=0.304
History of child being pressurized to take up a particular career (n=522)			
Yes	6(6.7)	84(93.3)	90
No	41(9.5)	391(90.5)	432
			X^2=0.725, p=0.394
Exhibits temper tantrums (n=545)			
Always	3(10.7)	25(89.3)	28
Most of the times	12(16.4)	61(83.6)	73
Sometimes	18(8.7)	189(91.3)	207
Rarely	15(8)	172(92)	187
Never/ only after disagreement with someone	3(6)	47(94)	50
			X^2=5.54, p=0.236
Child's reaction on being scolded (n=442)			
Rebels openly	10(8.3)	110(91.7)	120
Internalizes anger	13(9.6)	123((90.4)	136
Releases anger by doing constructive work	22(11.8)	164(88.2)	186
			X^2=4.34, p=0.227
History of saying lies (n=556)			
Always	3(17.6)	14(82.4)	17
Most of the times	4(7.4)	50(92.6)	54
Sometimes	17(11.3)	133(88.7)	150
Rarely	24(10.2)	212(89.8)	236
Never	5(5.1)	94(94.9)	99
			X^2=4.562, p=0.335

VLBW Very low birth weight, *LBW* Low birth weight, *NBW* Normal birth weight

Table 2 Association between parental determinants and presence of behavioral problems among primary school children

Maternal determinants			
Characteristics	Behavioral Problems		Total
Educational status of the mother (n=548)	Present	Absent	
Illiterate/Primary school	5(20)	20(80)	25
Middle school	15(13.4)	97(86.6)	112
High school	12(9.8)	111(90.2)	123
Pre university course	10(6.5)	144(93.5)	154
Graduate	10(7.5)	124(92.5)	134
			X^2=7.463, p=0.113
Occupational status of the mother (n=483)			
Homemaker	30(10.3)	262(89.7)	292
Unskilled/Semi-skilled	4(5.8)	65(94.2)	69
Skilled	7(21.2)	26(78.8)	33
Business/ Semi-Professional	6(6.7)	83(93.3)	89
			X^2=7.171, p=0.067
Diet during pregnancy (n=559)			
Adequate	27(7.2)	348(92.8)	375
Inadequate	18(15.7)	97(84.3)	115
Not sure	6(8.7)	63(91.3)	69
			X^2 = 7.6, p=0.022
History of physical or emotional trauma sustained during pregnancy (n=567)			
Yes	8(11.3)	63(88.7)	71
No	37(8.2)	416(91.8)	453
Not sure	8(18.6)	35(81.4)	43
			X^2=5.402, p=0.067
Mode of delivery (n=575)			
Normal	35(10.3)	304(89.7)	339
Caesarean section	19(8.1)	217(91.9)	236
			X^2=0.845, p=0.358
Age at child birth (n=556)			
18 years or less	2(8.3)	22(91.7)	24
19–30 years	43(10)	385(90)	428
>30 years	6(5.8)	98(94.2)	104
			X^2=1.86, p=0.395
Paternal determinants			
Occupation status of the father (n=509)	Present	Absent	
Unemployed/ Unskilled	9(10.7)	75(89.3)	84
Semi-skilled	12(15)	68(85)	80
Skilled	10(9.7)	93(90.3)	103
Business	7(5.3)	126(94.7)	133
Semi-Professional	10(9.2)	99(90.8)	109
			X^2=5.79, p=0.215
Time spent with the child on an average on a weekend (n=472)			
≤3 hours	4(5.1)	74(94.9)	78
3.1–6 hours	7(9.5)	67(90.5)	74
6.1–14 hours	6(5.7)	99(94.3)	105
More than 14 hours	24(11.2)	191(88.8)	215
			X^2=4.13, P=0.248

Table 3 Association between familial/ecological determinants and presence of behavioral problems among primary school children

Characteristics	Behavioral Problems		Total
Family Type (n=586)	Present	Absent	
Joint	7(4)	167(96)	174
Nuclear	46(11.2)	366(88.8)	412
			X^2=7.586, p=0.006
Religion (n=527)			
Hindu	23(7.7)	275(92.3)	298
Muslim/Christian	27(11.8)	202(88.2)	229
			X^2=2.5, p=0.114
Marital Status (n=531)			
Married	45(9.1)	448(90.9)	493
Divorcee/Remarried/Deceased/Separated	7(18.4)	31(81.6)	38
			X^2=3.45, p=0.063
Living conditions at place of stay (n=559)			
Very good	10(6.1)	155(93.9)	165
Good/Average	37(10.7)	310(89.3)	347
Bad/Very bad	6(12.8)	41(87.2)	47
			X^2=3.405, p=0.182
Family history of medical diseases (n=572)			
Yes	0(0)	23(100)	23
No	52(9.7)	485(90.3)	537
Not sure	1(8.3)	11(91.7)	12
			X^2=2.473, p=0.290
History of domestic violence at home (n=527)			
Yes	10(12.8)	68(87.2)	78
No	41(9.1)	408(90.9)	449
			X^2=1.035, p=0.309
Frequency of occurrence of domestic violence at home (n=74)			
Very frequently/Frequently	3(7.7)	36(92.3)	39
Sometimes	5(33.3)	10(66.7)	15
Rarely/Never	2(10)	18(90)	20
			X^2=6.384, p=0.041
History of child being allowed to express idea and thoughts (n=558)			
Always/Most of the times	32(8.6)	342(91.4)	374
Sometimes	17(12.1)	124(87.9)	141
Rarely/Never	5(11.6)	38(88.4)	43
			X^2=1.638, p=0.441
Reaction to child's thoughts (n=425)			
Agreement most of the times	26(9.8)	238(90.2)	264
Disagreement most of the times	7(5.7)	116(94.3)	123
Minimal or no discussion at all	4(10.5)	34(89.5)	38
			X^2=1.999, p=0.368
Routine history of child being physically harmed when disobedient (n=386)			
Yes	15(16.9)	74(83.1)	89
No	21(7.1)	276(92.9)	297
			X^2=7.75, p=0.005
History of giving into demands of the child (n=559)			
Always	9(15.3)	50(84.7)	59
Most of the times	10(7.3)	127(92.7)	137
Sometimes	21(8.7)	221(91.3)	242

Table 3 (continued)

Characteristics	Behavioral Problems		Total
Rarely/Never	13(10.7)	108(89.3)	121
			$X^2=3.46$, $p=0.326$
History of being always concerned about the child ($n=563$)			
Yes	33(10.8)	272(89.2)	305
No	19(7.4)	239(92.6)	258
			$X^2=1.991$, $p=0.158$
History of child being pampered ($n=551$)			
Always	9(14.1)	55(85.9)	64
Most of the times	7(5.1)	131(94.9)	138
Sometimes	22(10.7)	184(89.3)	206
Rarely/Never	12(8.4)	131(91.6)	143
			$X^2=5.33$, p=0.149

For calculating unadjusted Odds Ratio and 95% CI, age ≤ 8 years was compared with age > 8 years (reference value), history of very low/low birth weight (LBW) baby was compared with normal birth weight (NBW)/big baby (reference value), mothers' of children who were illiterates or if educated till primary school were compared with mothers' with higher educational status (reference value), mothers' of children reporting inadequate diet during the antenatal period were compared with those reporting adequate diet during this period (reference value), children of other religions were compared with children who were Hindus by religion (reference value), children from nuclear families were compared with those from joint families (reference value), parents with divorced/remarried/deceased/separated - marital status were compared with those whose current marital status was married (reference value), history of domestic violence in households was compared with those without (reference value), routine history of child being physically harmed by the parents when the child was disobedient was compared with those without (reference value) and positive history of children being pampered by their parents always/most of the times/ sometimes were compared with children who rarely/never had the same history (reference value).

Family history of medical illness was omitted from this model as the *p* value for its adjusted ratio was found to be 0.998.

Binary logistic regression analysis identified variables such as inadequate diet during related pregnancy, being from nuclear families, when biological parents were not currently married and routine history of child being physically harmed when disobedient by their parents, as independent determinants of behavioral problems among primary school children (Table 4). Naegelkerke R square value was 0.371 and Hosmer and Lemeshow test p value was 0.528 indicating that this model was a good fit.

The FGD was based on the findings of binary logistic regression analysis. The investigators reiterated that use of physical harm in any form or severity, to discipline a child either at school or in home environment needed to be compulsorily avoided. They suggested that students should be rather corrected in an atmosphere of care and affection. It was also emphasized that whenever a pupil dissuades from a faulty behavior, he/she need to be suitably appreciated.

The FGD also focussed upon how to support families before their children enter schools and the role of teachers in this initiative.

Teachers based on their previous experiences, brought out some additional points related to the theme of discussion. They pointed out that, even if adequate appreciation and attention were given to some of the affected children with behavioral problems, they did not improve academically. The investigators responded to this by stating that only appreciation at schools is not sufficient. Children need to be supported with extra care and attention even at their home environment as well. Hence efforts should be put up jointly by both the parents and the teachers.

A few teachers revealed that certain children had contrasting behaviors in different environments. At schools they were reported to be well behaved. On the contrary, at home, they were aggressive and uncontrollable. The investigators opined that this situation might have arisen due to the generation gap at home where the children get stuck between people of different generations, namely parents and grandparents. This results in exposure to varying methods of disciplining and rearing. At times, altercations between the people of the two generations might be the cause of behavioral problems among children. A few other teachers opined that in the current competitive world, there is much more pressure to excel in academics that starts at an early age. This may be responsible for undue stress among school children.

Few teachers from the government schools complained that parents of children do not turn up for the monthly parents teachers meeting. So they were unable to share the behavioral issues concerning their wards to their parents. This situation

Table 4 Binary logistic regression analysis of independent determinants of behavioral problems among primary school children

Characteristics	Unadjusted OR	95% CI of unadjusted OR		p value	Adjusted OR	95% CI of Adjusted OR		B	SE	p value
		Lower	Upper			Lower	Upper			
Age (n=599)	2.228	1.247	3.983	0.006	1.381	0.889	2.148	0.323	0.225	0.151
Educational status of the mother (n=548)	2.532	0.909	7.055	0.066	1.395	0.894	2.179	0.333	0.227	0.143
Diet during pregnancy (*n*=490)	2.392	1.264	4.524	0.006	3.84	1.422	10.367	1.346	0.507	0.008
Type of family (n=586)	2.998	1.326	6.78	0.006	4.404	1.089	17.807	1.482	0.713	0.038
Religion (n=527)	1.598	0.89	2.869	0.114	2.231	0.833	5.977	0.803	0.503	0.11
Marital status of the parents (n=531)	2.248	0.937	5.396	0.063	11.6	2.425	55.481	2.451	0.798	0.002
Routine history of child being physically harmed when disobedient (n=386)	2.664	1.309	5.422	0.005	5.893	2.105	16.5	1.774	0.525	0.001

was seen more so involving parents who were daily wage workers. Since they were of lower socio economic background and mostly illiterate, they were unable to help their children complete school assignments at home. The teachers, therefore complained that they did not get any form of support from the parents, to improve the academics performance of children with behavioral problems. They were also of the opinion that the parents and children were not concerned about the end of term exams, as there is a compulsory promotion rule for students from 1st to 8th standard in all government schools. Most teachers at both government and private schools felt that children of the current generation were very bold and they did not fear their teachers at all. They therefore felt that, disciplining students was not at all an easy task.

Out of 54 students with behavioral problems, 48(88.9%) did not participate in singing activities as a part of co-curricular activities (CCA) at school in comparison to 393(72.1%) out of 545 without behavioral problems ($X^2 = 7.123$, $p = 0.008$).

There were however no association between the presence of behavioral problems among children with their ability to read and write appropriately for the age ($p = 0.28$), academic performance ($p = 0.197$), participation in any CCA ($p = 0.099$) during school hours, participation in dancing activities as a part of CCA ($p = 0.447$), playing musical instruments as a part of CCA ($p = 0.384$), doing fine art as a part of CCA ($p = 0.594$) and ability to interact well with peers ($p = 0.803$).

Discussion

Modification of behavioral problems among children requires identification of its determinants. Intervening and correcting the various problems in their developing environment during the early schooling years would possibly minimize the impact of behavioral problems in their later life.

Behavioral problems were reported among 8.7% children in this study. In other studies done in India, 12.6% (Taj & Agalya, 2014), 14.6% (Gupta et al., 2001), 16.2% (Deivasigamani, 1990), 18% (Barman & Khanikor, 2018) and 22.7% (Gupta et al., 2017) primary school children had behavioral problems, as identified by their teachers.

Among the children with behavioral problems in this study, the mean age of boys was significantly less than that of girls. As externalizing behavioral problems are more prevalent among males, they tend to get easily noticed (Srinath et al., 2005). On the contrary, females are usually diagnosed later in life, as internalizing problems are more common among them (Bell, Foster, & Mash, 2005).

Among the socio demographic variables, only age ≤ 8 years was associated with behavioral problems among children in this study. Other studies reported age ≤ 9 years (Al Azzam, Al Bashtawy, Tubaishat, Batiha, & Tawalbeh, 2017), male gender (Akpan, Ojinnaka, & Ekanem, 2010; Liu et al., 1999; Al Azzam et al., 2017; Salwa, Abdul-Wahid, Al-Zuheiry, & Al-Jashamy, 2014; Theunissen, Velderman, Cloostermans, & Reijneveld, 2017), studying in government schools (Akpan et al., 2010) and low SES (Akpan et al., 2010) as the socio demographic variables associated with behavioral problems among primary school children.

In relation to the events related to early development years in the child, only inadequate diet during antenatal period was associated with behavioral problems among children. Previous studies have reported infections, psychological distress and other complications during ante natal period (Liu et al., 1999), intra-natal factors like injuries, hypoxia, prolonged or difficult labour, prematurity (Liu et al., 1999), postnatal factors like physical diseases (Liu et al., 1999; Nelson, Stage, Duppong-Hurley, Synhorst, & Epstein, 2007), malnutrition before age of 3 years (Liu et al., 1999), delay in speech (Liu et al., 1999), bedwetting persisting 4 years or beyond (Liu et al., 1999), and sleeping difficulty (Nelson et al., 2007) to be associated with behavioral problems among children.

In the present study, no socio demographic or other variables among parents were associated with behavioral problems among children. In previous studies, lower educational status of the father (Liu et al., 1999; Theunissen et al., 2017; Vijayaprakash, Venkatesan, & Begum, 2013), lower educational status of the mother (Martineli, Pizeta, & Loureiro, 2018), parental occupation (Salwa et al., 2014; Vijayaprakash et al., 2013) low family income (Deivasigamani, 1990; Martineli et al., 2018), maternal history of depression (Martineli et al., 2018; Nelson et al., 2007), chronic physical illness among parents (Liu et al., 1999), and family history of psychiatric illnesses (Liu et al., 1999) were associated with behavioral problems among children.

In relation to ecological factors, this study observed children brought up in nuclear families, and those brought up in families where there were increased frequency of domestic violence had significant association with behavioral problems. Additionally, in multivariable analysis, children in families where biological parents were not currently staying together had significant association with behavioral problems. Similarly in previous studies, neglect on the part of the fathers (Gupta et al., 2001), history of paternal death (Deivasigamani, 1990), history of maternal death (Salwa et al., 2014), disharmony among parents (Deivasigamani, 1990) and history of separation of the parents were associated with behavioural problems among children (Deivasigamani, 1990; Salwa et al., 2014). These determinants compromise the quality of parental care making children prone to develop behavioral problems (Naik & Jogdand, 2013).

Almost three fourths of the working mothers were from nuclear families and 58.3% of parents with history of divorce or separation or remarriage or deceased status were also from nuclear families. This could also to certain extent explain why children brought up in nuclear families were associated with behavioral problems, as a consequence of poor parental care. Liu et al. (1999) reported that ecological factors like domestic violence within the households, going out for work and a history of separation among parents resulted in a state of poor interaction among family members which in itself was a source of stress (Liu et al., 1999). Such environment would therefore adversely affect the psychosocial development among children (Jogdand & Naik, 2014).

Previous research works have also supported that children from divorced or separated families or deceased status of one or both parents, invariably suffer higher rates of externalizing behavior, hyperactivity, antisocial behavior, academic or school performance difficulties, peer relationship problems, and to a little extent internalizing problems too, compared to children brought up in intact families (Jogdand & Naik, 2014; Liu et al., 1999). Interventions such as parental counseling will be helpful in strengthening the role of family in the prevention of behavioral problems among children (Jogdand & Naik, 2014).

Other ecological determinants of behavioral problems as reported in previous studies were number of siblings (Al Azzam et al., 2017; Theunissen et al., 2017), poverty (Venkata & Panicker, 2013) and substance abuse (Jogdand & Naik, 2014).

In relation to parenting style, routine history of child being physically harmed when disobedient was a determinant of behavioral problem. This was similar to observations of previous studies (Liu et al., 1999; Nelson et al., 2007). Use of physical measures to discipline can result in psychological and emotional harm among children. The effects of such disciplining methods to reduce unacceptable behavior has not found to last long as there is a possibility of the child not acquiring the required skills to practice desirable behavior (N. Sharma & Sharma, 2013). It should therefore be restricted for use as the last resort in situations of repeated misbehavior. It is to be combined with positive procedures and applied discriminately and not routinely.

Children coming from families with over protective parental attitude (Jogdand & Naik, 2014) or from families showing poor response to children's misbehaviors (Liu et al., 1999) were also reported to be at risk of developing behavioral problems. These issues too can be addressed during parental counselling sessions (Naik & Jogdand, 2013).

School teachers need to play a lead role in this team both as facilitators, and as counselors. They therefore need to be provided with the requisite training to appropriately deal with behavioral problems. Teachers can help develop peer friendships among students by having them work together. This will help students as they learn to share materials, follow instructions, express empathy and learn to work out disagreements among themselves (Joshi et al., 2012). Information on social dynamics in the classroom would help teachers to improve interactions among pupils who are isolated in the peer network. Activities within classrooms like change in seating arrangement, provision of more opportunities to enable interaction with different peers and creation of a collaborative learning atmosphere are areas where teachers can play a constructive role (Pearl, Leung, Van Acker, Farmer, & Rodkin, 2007).

The student should be frequently reinforced on what is expected out of them (Helping the student with ADHD in the classroom: strategies for teachers, 2018). Classroom Organization and Management Program (Everston & Harris, 1995) by teachers has shown better task engagement and academic performances, and also resulted in fewer inappropriate behaviors, among students in the classroom.

Positive teacher behaviors such as provision of choice, guidance, modelling, enthusiasm, praise and reinforcement have been found to promote student motivation (Joshi et al., 2012). Difficult students who received positive one-to-one teacher support in the class were found to experience improved peer acceptance (Mikami et al., 2013). Explicit training in classroom behavior management will nurture necessary skills among teachers to handle difficult behaviors in the classroom in a confident manner (Giallo & Little, 2003). The current teacher

training programme and support structures in schools therefore need further enhancement.

Schools can strive to improve the environment of child upbringing at homes by encouraging teacher parent communication through formal and informal meetings (Guerra, Boxer, & Kim, 2005). They can also periodically inform parents about recommended policies through newsletters. Inclusion of social and behavioral evaluation in formative assessment are other measures suggested for enhancing student accountability (Guerra et al., 2005).

The present research was done to identify primary school children with behavioral problems. The findings of this study also help in the understanding the role of early childhood/familial/ecological factors in relation to behavioral problems among school children.

Socio demographic factors like age ≤ 8 years, inadequacy of diet during antenatal period of the mother of the child, ecological factors like nuclear family, families where biological parents were currently not staying together, history of increased periodicity of domestic violence at home and faulty parenting styles like routine history of child being physically harmed when disobedient were associated with behavioral problems among children. Improvement of parenting skills by parental counselling services is therefore suggested. Added to this, general improvement in maternal and child health and nutritional services to ensure adequate diet during gestational periods is essential to contain behavioral problems among children. Mental health services at schools need to be strengthened to create awareness among teachers about behavioral probems and to provide targeted approach to children identified with specific determinants of behavioral problems. These measures will help in containment of behavioral problems among children in the current setting.

Limitations

The findings of this study may not be generalizable to the entire population of primary school children in India. The children were identified to have behavioral problem based on a questionnaire filled by the teachers and not on the basis of any clinical diagnosis done by medical professionals. Also, the information on behavioral problems was obtained from a single source. The questionnaire on determinants of behavioral problems among children was returned incomplete by some parents. There is also a possibility of non-reporting of information involving sensitive parameters and of recall bias involving information pertaining to early developmental years of the child. The cross sectional design of this study further limits the causality of association between determinants and behavioral problems among school children.

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Data Availability The SPSS spread sheet containing the data of this research study has been uploaded as a supplementary file.

Compliance with Ethical Standards

Conflict of Interest None declared.

Ethics Approval This was obtained from institutional ethics committee with reference number IEC KMC MLR 04–18/71 dated 18th April, 2018.

Consent to Participate Written informed consent to participate was taken from the parents and assent for participation was taken from the school students.

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Code Availability Data were coded, entered and analysed using IBM SPSS for Windows version 25.0, Armonk, New York.

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