ORIGINAL ARTICLE

Prevalence of Emotional and Behavioural Problems in Johor Bahru District School Children – Comparing Three Geographical Areas

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Summary

This is a cross sectional community study in Johor Bahru District. The aim of this study is to estimate the overall prevalence of emotional and behavioural deviance among the school children in three different geographical areas, and to identify their correlates. This paper presents the findings of phase one of a two-stage procedure involving a total of 589 children aged 10-12 years. Using the cut-off point validated locally, the prevalence of deviance on the parental scale was 40% in the rural school, 30.2% in the agricultural resettlement (Felda) school and 32.3% in the urban school. On the teachers' assessment, the prevalence of deviance was 40.8% in the rural school, 10.8% in the Felda School and 8.9% in the urban school. There was significantly higher prevalence of deviance in the rural school on the teachers' scale. In the rural school, significantly higher prevalence of deviance was found among boys.

Key Words: Emotional and behavioural problems, Child psychiatry, School children

Introduction

The socioeconomic system, family structure, educational system, culture, etc. in Malaysia is undergoing remarkable changes following the rapid development, namely urbanisation and industrialisation in the country. The aim of this study is two fold: to estimate the overall prevalence of emotional and behavioural deviance among the school children in three different geographical areas in the Johore Bahru District, and to identify the correlates of these disorders. With these demographic data, we hope to estimate the absolute number of affected individuals for planning mental health services and prevention of emotional and behavioural disorders among children.

Method

This is a cross sectional community study in the Johor Bahru District. With the permission and assistance of the Educational Department Johore Bahru, three ordinary schools were identified in an attempt to achieve representativeness in geographical, socioeconomic and population density indices. The study period was from June to August 1995. The multimethod-multistage approach of Rutter *et al.* was adopted to ascertain potential cases. In this approach, rating scales completed by parents and teachers were used as first stage screening instruments. Subjects with scores above the cutoff score were identified as possibly disturbed and further evaluated.

Rutter's Questionnaires (A and B) were translated into Malay and back translation was done with satisfactory result. These scales covered the main common emotional and behavioural problems of children as they might be seen in home and school settings. The responder is asked to indicate whether each description 'certainly applies', 'applies somewhat', or does not apply' to the child in question. The ratings are scored 2, 1, and O respectively, and the scores were added to produce a total score. This Questionnaire had been validated locally with a sensitivity of 66.7% and specificity of 67.6% at the cutoff point of 9/10 on the parental scale (Scale A); a sensitivity of 61.8% and specificity of 71.4% at the cutoff point of 8/9 on the teachers' scale (Scale B). In addition, the scores for certain items are grouped together to obtain antisocial and neurotic subscores. Each child is categorized as either antisocial or neurotic depending on which of his subscores is higher, or those children with equal antisocial and neurotic subscores are categorized as undifferentiated.

In the second stage, all the children with scores above the cutoff score and the sample of those with scores below this value were interviewed using structured psychiatric interview[1,3,4] instrument. This paper presents the findings at stage one.

Subjects

All the 589 children aged 10-12 years old in the three schools, with different living conditions, were studied. School A is a rural school, located in a fishing village with 50 samples. School B was in a Felda Scheme, which is a different setting with recent agricultural settlers with 190 samples. School C is an urban school in Johor Bahru City with 349 samples.

Screening Method

The three schools were approached for cooperation. The aim and content of the research were explained to the school principal and class teachers involved. The teachers were required to fill in Rutter teachers' questionnaire which was printed in bilingual version.

The children were approached by the first two authors (YC & AK) for a semistructured interview. After the interview, Scale A with a covering letter was given to the child to give to their parents and later collected by their class teachers. Class teachers were also required to complete Scale B. The teachers were responsible to collect the Scale A and B and return to the investigators by one week.

Results

Table I showed the sociodemographic characteristics of the children from the three school, ie. rural (A), Felda (B) and Urban (C) school. All the children were aged between 10-12 years, with a mean age of 11 years. This age factor was an inclusion criteria, as Rutter's Questionnaires were originally standardised on children aged 10 to 11 years[1,6]. The majority of children school A and B were Malays. This was representative of most rural and recent settler scheme. The predominance of Malay children in school C could be an occurrence by chance as Malays and Chinese were the majority in Johor Baru City. There was statistically more children in School A and B from the lower social class (IV and V) ($p<0.01$). In the urban school, the children were more evenly distributed across the social class, with majority from social class II and III. 13.6% of children from the rural school had health problems compared to 29.3% in the Felda Scheme and 39% in the urban school. These health problems were obtained from the semi-structured interview and include medical conditions like asthma. However, this aspect was not the main objective of this study and will be discussed in a later paper. 12.4% of the children in the Felda school came from broken family compared to 6% in the rural school and 5% in the urban school. Further analysis showed 22% of children in School A came from family with discord, compared to 9.5% in School B and 4% in School C. This was significant at 1% level.

90% of parents in the rural school responded as compared to 75. 4% from the city school and 61.1% in the Felda school. The lower rate of response in the Felda school could coincide with the finding that 12.4% of the children in the Felda school came from broken family. Again, the response rate among the teachers was highest in the rural school (98%), as compared to 63% in the Felda school and 67.6% in the city school. School A showed the best response in

Table I
Sociodemographic characteristics

School	A (n=50)	B (n=190)	C (n=349)
Sex			
Male	28	90	193
Female	22	100	156
Age	11	11	11
Race			
Malay	50	186	345
Chinese	–	–	3
Indian	–	4	1
*Social class			
I	1	0	46
II	2	5	104
III	6	16	120
IV	11	47	56
V	30	121	23
Health problem			
Yes	6	43	98
No	44	147	251
Family			
Intact	47	169	332
Divorce/separated	3	21	17

**by occupation*

Class I = Professional and managerial;
Class II = Semiprofessional;
Class III = Skilled worker;
Class IV = Semiskilled workers;
Class V = Unskilled worker.

both teachers' and parental scale (Table II). This could be due to the small number of children in a class, making it easier for the teachers to assess and to ensure the return of Parental Questionnaire.

The prevalence of children with deviant scores on the teachers' and parents' scales are shown in Table III. Using the cutoff score of 9/10, the prevalence of deviance in the parents' assessment was 40% in rural school, 30.2% in Felda school and 32.3% in urban school. There was no statistical difference in the prevalence among the three schools on parental scale (p=0.49). The ratio of neurotic subtype to the antisocial one was high in all the three schools on Scale A. With the cutoff score of 8/9, the prevalence of deviance in the teachers' assessment was 40.8% in the rural school, 10.8% in the Felda School and 8.9% in the Urban school. There was significantly higher prevalence of deviance in school A compared to School B and C (p=1.1E-08).

The overlap between deviant as assessed by teachers and as assessed by parents, was small, and the subcategory could not be determined. The prevalence

Table II
Response rate

School	A (n=50) N (%)	B (n=190) N (%)	C (n=349) N (%)
Parental scale	45 (90)	116 (61.1)	263 (75.4)
Teacher's scale	49 (98)	120 (63.0)	236 (67.6)

Table III
Prevalence of high-score children

School	Rater	No.	Prevalence	Subcategory		
			N (%)	Anti-social	Neu-rotic	Undiffe-rentiated
A	Parents	45	18 (40)	6 (13)	7 (15.6)	4 (8.9)
	Teacher	49	20 (40.8)	9 (18.4)	6 (12.2)	4 (8.2)
	Both	44	8 (18.2)	-	-	-
B	Parents	116	35 (30.2)	9 (7.8)	14 (12.1)	6 (5.2)
	Teacher	120	13 (10.8)	4 (3.3)	5 (4.2)	4 (3.3)
	Both	88	3 (3.4)	-	-	-
C	Parents	263	85 (32.3)	30 (11.4)	36 (13.7)	15 (5.7)
	Teacher	236	21 (8.9)	14 (5.9)	5 (2.1)	2 (0.8)
	Both	235	10 (4.3)	-	-	-

of children assessed as deviant by both teachers and parents was only 18.2% in the rural school, 3.4% in the Felda school and 4.3% in the City school.

Male children were seen as more deviant in School A on the teachers' assessment (p=0.04). No sex difference was seen in the prevalence of deviance at home in the three schools but there was higher prevalence of conduct problems among the boys and more emotional problems among the girls (Table IV).

The percentage for each item scored 1 or 2 by parents are shown in Table V. The distributions were compared between school A, B and C. Many forms of antisocial behaviour at home was more frequent in School A than school B and C.

Many forms of antisocial behaviour and emotional problems were significantly higher in the rural school compared to Felda and urban school.

Due to the very small sample size involved, we were unable to establish any statistical correlation between deviance and educational retardation and sibsize.

Discussion

The present study is a first step in attempting to establish the prevalence of psychiatric morbidity among school children in Johor Bahru District. This was a community study involving three primary schools in three geographical areas in Johor Bahru, namely a rural fishing village, an agricultural resettlement Scheme and urban housing area. The screening instruments were the Questionnaires developed by Rutter[1,5]. Satisfactory validity testing data was reported in Great Britain[1,5].

Table IV
Prevalence of high score children by sex

School	Rater	Sex	No.	Prevalence N(%)	Subcategory Emotional	Conduct
A	Parent	Male	26	8 (30.8)	4 (15.4)	1 (3.8)
		Female	19	10 (52.6)	3 (15.8)	5 (26.3)
	Teacher	Male	28	15 (53.6)*	2 (7.1)	9 (32.1)
		Female	21	5 (23.8)	4 (19)	0
B	Parent	Male	49	16 (32.7)	5 (10.2)	7 (14.3)
		Female	67	19 (28.4)	9 (13.4)	2 (3)
	Teacher	Male	61	10 (16.4)	3 (4.9)	3 (4.9)
		Female	59	3 (5.1)	2 (3.4)	1 (1.7)
C	Parent	Male	128	39 (30.5)	11 (8.6)	18 (14.1)
		Female	134	46 (34.3)	25 (18.9)	12 (9)
	Teacher	Male	117	10 (8.5)	1 (0.9)	8 (6.8)
		Female	119	11 (9.2)	4 (3.4)	6 (5)

**Significant at 5% level*

The Questionnaire had been translated into Malay, the national language of Malaysia. Validation of the Questionnaire for Malaysian children had also been done earlier[2].

The three schools represented three different geographical areas with different living conditions. These schools had been selected randomly by the Educational Department and this was not a controlled study. The prevalence of deviance on the parental scale was 40% in School A, 30.2% in school B and 32.3% in school C. There was no significant difference among the three schools on Scale A. The prevalence of deviance on the teachers' scale was 40.8% in school A, 10.8% in school B and 8.9% in school C. School A showed significantly higher prevalence of deviance than school B and C ($p<0.01$). In the Isle of Wight study by Rutter *et al*[1,8,9], psychiatric morbidity was noted to be twice higher in the inner city of London than Isle of Wight. On further analysis, Rutter *et al* found that to a large extent, the higher rate of deviance in Inner London Borough was a function of the greater frequency of family discord, parental mental disorder and poor living condition. After controlling for these family adversities, Rutter *et al* found no significant difference in psychiatric morbidity between the two areas. In our study, significantly higher number of children in School A and B came from lower social class. Detailed analysis showed significantly higher frequency of family discord in School A ($p<0.01$). Furthermore, there is also higher prevalence of parental psychopathology, ie. alcoholism and mental illness in school A although this was not significant statistically. These familial adversities could be the possible explanations for the higher prevalence of deviance in school A. Other possibilities include certain behaviour (eg. skipping class, rough play, etc.) may be more prevalent in the rural culture.

Comparing other previous studies using the same instrument as shown above, there was higher rate of deviance in our study on the parental scale. On Scale B, our urban children was comparable to the New Zealand population. The prevalence of children who

Table V
Item distribution with parents' questionnaire

Item	School A (n=45) n (%)	School B (n=116) n (%)	School C (n=263) n (%)	p
I. Motor, Cognitive				
Restless, overactive	19 (42.2)	44 (37.9)	79 (30)	
Fidgety	8 (17.7)	18 (15.5)	58 (22.1)	
Poor concentration	18 (40)	42 (36.2)	106 (40.3)	
II. Mood disorders				
Temper	2 (4.4)	4 (3.4)	7 (2.7)	
Irritability	15 (33.3)	49 (42.2)	127 (48.3)	
Worried	12 (26.7)	37 (31.9)	67 (25.5)	
Miserable	6 (13.3)	15 (12.9)	28 (10.6)	
Fearful	10 (22.2)	38 (32.8)	96 (36.5)	
Fussy	12 (26.7)	33 (28.4)	92 (35)	
School tears	1 (2.2)	2 (1.7)	2 (0.8)	
III. Psychosomatic				
Headaches	17 (37.8)	49 (42.2)	127 (48.3)	
Stomach aches	20 (44.4)	36 (31)	78 (29.7)	
Asthma, wheezing	3 (6.7)	8 (6.9)	27 (10.3)	
IV. Habits				
Stutter	6 (13.3)	15 (12.9)	24 (9.1)	
Other speech disorder	1 (2.2)	7 (6)	10 (3.8)	
Bed wetting	5 (11.1)	12 (10.3)	17 (6.5)	
Soiling	2 (4.4)	4 (3.4)	7 (2.7)	
Eating difficulty	8 (17.8)	36 (31)	125 (47.5)	**
Bite nails	6 (13.3)	17 (14.7)	40 (15.2)	
Twitches	3 (6.7)	8 (6.9)	10 (3.8)	
Suck thumb	2 (4.4)	7 (6)	19 (7.2)	
V. Relationships				
Not liked	11 (24.4)	19 (16.4)	35 (13.3)	
Solitary	1 (2.2)	19 (16.4)	52 (19.8)	*
VI. Antisocial				
Truants	24 (53.3)	37 (31.9)	51 (19.4)	**
Destructive	7 (15.5)	17 (14.7)	38 (14.4)	
Fights	20 (44.4)	31 (26.7)	71 (27)*	
Disobedient	26 (57.8)	56 (48.3)	149 (56.7)	
Lies	15 (33.3)	29 (25)	59 (22.4)	
Steals	14 (31.1)	15 (12.9)	17 (6.5)	**
Bullies	3 (6.7)	7 (6)	11 (4.2)	

*$p<0\ 05$, **$p<0.01$

Table VI
Item distribution with teachers' questionnaire

Item	School A (n=49) N(%)	School B (n=120) N(%)	School C (n=236) N(%)	p
I. Motor, Cognitive				
Restless, overactive	29 (59.2)	24 (20)	44 (18.6)	**
Fidgety	29 (59.2)	23 (19.2)	21 (8.9)	**
Poor concentration	26 (53.1)	32 (26.7)	26 (11)	**
II. Mood disorder				
Irritable	19 (38.8)	2 (1.7)	29 (12.3)	**
Worried	21 (42.9)	27 (22.5)	32 (13.6)	**
Miserable	9 (18.4)	3 (2.5)	8 (3.4)	**
earful	25 (51)	42 (35)	24 (10.2)	**
Fussy	24 (49)	6 (5)	25 (10.6)	**
School tears	0 (0)	0 (0)	0 (0)	
III. Psychosomatic				
Aches & Pains	21 (42.9)	3 (2.5)	27 (11.4)	**
Absent for trivial reason	33 (67.3)	14 (11.7)	11 (4.7)	**
IV. Habits				
Twitches	3 (6.1)	1 (0.8)	4 (1.7)	
Suck thumb	1 (2)	0 (0)	7 (3)	
Bites Nails	1 (2)	3 (2.5)	18 (7.6)	
Stutter	15 (30.6)	27 (22.5)	9 (3.8)	**
V. Relationships				
Solitary	32 (65.3)	15 (12.5)	52 (22)	**
Not liked	15 (30.6)	3 (2.5)	14 (5.9)	**
VI. Antisocial				
Truants	30 (61.2)	19 (15.8)	6 (2.5)	**
Destructive	7 (14.3)	1 (0.8)	17 (7.2)	**
Fights	16 (32.7)	15 (12.5)	21 (8.9)	**
Disobedient	18 (36.7)	7 (5.8)	38 (16.1)	**
Lies	12 (24.5)	1 (0.8)	27 (11.4)	**
Steals	4 (8.2)	3 (2.5)	13 (5.5)	
Bullies	9 (18.4)	1 (0.8)	14 (5.9)	**

*$p<0.05$, **$p<0.01$

were assessed as deviant by both parents and teachers was low in all the three schools. This corresponded to Rutter's finding that there was disagreement between the parents' and teachers' assessment concerning children identified as having deviant behaviour[1,5]. The prevalence of deviance was higher at home than at

school in all three schools. These results might indicate that the children showed more deviant behaviour at home or the parents were more sensitive or less accepting of problem behaviour.

The first hypothesis is in accord with a view of problem behaviour as being context-dependent to some degree. Vikan[16] reported that a higher agreement between parents' report and psychiatrists' assessments than teachers' reports and psychiatrists' assessment. On the other hand, some advocate that teachers observe many children of the same age simultaneously and hence can assess the children's behaviour more objectively[17]. A single assessment, by either a teacher or a parent, was thought to be inadequate in identifying behavioural problems in[18,19] children. These findings suggest that following the screening questionnaires, an intensive examination is necessary to detect children with significant psychiatric disorder[3,4,17,19]. This is what would be carried out in the second part of this study.

The prevalence of deviance was higher in boys and this corresponded to most findings that boys are more vulnerable than girls[1,17]. There was also higher prevalence of conduct disorders amongst the boys and the girls tend to have more emotional problems.

Detailed analysis of the item distribution on Scale A and B showed that antisocial behaviour was significantly higher in School A. This could be due to poor socioeconomic situation in the rural area, with its associated factors (eg. lack of supervision, etc). Neurotic problems (eg. eating difficulties) appear to be significantly higher on scale A in the urban school, which consists of children who came mainly from higher social class. However, statistical correlation between social class and behavioural deviance was not established in this study due to the small sample size in social class I and II among children from school A and B.

This study showed higher prevalence of deviant behaviour in children with poor school achievement than in those with good school achievement. However, this was not statistically significant due to the very small sample size of children with educational retardation. Similarly, no statistical correlation was established between deviance and sibsize.

Table VII
Prevalence of deviance in other studies using Rutter's Children Behaviour Questionnaire

Study	Scale A	Scale B
United Kingdom[1,8,9]		
London		19.1%
Isle of Wight		10.6%
Japan[10]	10.2%	7.3%
New Zealand[11]	17.3%	8.9%
China[12]		8.3%
Mauritius		23.3%
Uganda[14]		18.1%
Malaysia		
Kuala Lumpur		
Urban school		16.5%
Johor Baru		
Urban(C)	32.3%	8.9%
Resettlement(B)	30.2%	10.8%
Rural(A)	40%	40.8%

There were some methodological aspects in the present study which need to be addressed. In the first place, the sampling was done by the Johore Educational Department in an attempt to achieve representativeness in geograpical, socioeconomic and population density. This was done in a random manner and no matching of demographic features was done. However, it is beyond the scope of this study to assess the size and nature of bias which has been caused by the present sampling procedure.

All of the children in this study attended ordinary class in an ordinary schools. A separate study is necessary to obtain information on the prevalence of deviance in children who need special education.

This paper present the first phase of a two-stage design where Rutter's Questionnaire was used to screen for behavioural deviance. This questionnaire was validated locally[2] based on clinical interview conducted by child psychiatrists to determine caseness (ie. emotional, behavioural or mixture of both). In the clinical

assessment, sociocultural factors were taken into consideration. As the original questionnaire was standardised on children aged 10 to 11 years[1,6], this is the age where certain developmental behaviour were considered deviant in most cultures (eg. bedwetting, soiling, nail biting). This age factors was adopted as an inclusion criteria in our study. A cut-off point was obtained in the validation process (ie. a sensitivity of 66.7% and specificity of 67.6% was obtained at the cut-off point of 9/10 on the teachers' scale and a sensitivity of 61.8% and specificity of 71.4% at the cut-off point of 8/9 on the teachers' scale) . The limitations of this questionnaire include not being diagnostic, unable to detect less common deviance or symptoms outside the home and school, unable to detect monosymptomatic disorder. Another important factor to be considered is that the teachers' and parents' personalities and backgrounds could affect their recognition, perception, tolerance and hence the judgement of a particular child's behaviour (eg. fussy, restlessness, etc.) bearing in mind Scale A and B are observational screening scale . A second stage involving intensive individual assessment of the child, interview of parents and significant household members, and detailed information from teachers is important to come to an overall assessment of the child, before drawing conclusions with finality based on Rutter's Questionnaire. In other words, a second stage is necessary to reduce response bias and to ascertain screening results.

This is the first part of a two stage study on the prevalence of emotional and behavioural deviance in three schools in Johore Bahru using Rutter's Children Behaviour Questionnaire (Scale A and B). The school in the rural area showed high prevalence of deviance on both Scale A and B, and boys seemed to have more deviance. A second stage psychiatric examination of the children identified as deviant will be carried out in a later study.

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