ORIGINAL ARTICLE

A Cross Sectional Study to Explore Factors Affecting Adolescent-Parents Attachment in a Rapidly Developing Society in Malaysia

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ABSTRACT

Introduction: Secure attachment to parents prevents adolescents from externalizing behaviours especially in developing countries. The aim of this study was to identify the contributors to parental attachment in a developing society. **Methodology:** This cross sectional study was performed on urban secondary students (aged between 13 and 17 years) based on multistage sampling in Pasir Gudang District, Johor, Malaysia. The depression, anxiety and stress (DASS-21) and Inventory of parent and peer attachment (IPPA) questionnaires were used along with a questionnaire for demographic information. Analysis of covariance (ANCOVA) was used to identify the main effect of study parameters on IPPA scores for father and mother. **Results:** A total of 2980 students (46.9% male and 53.1% female) participated in this study. Mean and SD for age was 14.39±1.28. Depression score and school form had a significant main effect on both paternal and maternal attachment ($p<0.05$). Age ($p=0.003$), ethnicity ($p=0.01$), history of intimate relationship ($p=0.03$), paternal education level ($p=0.006$) and maternal education level ($p=0.04$) had a main effect on paternal attachment, while gender ($p=0.02$) and stress ($p=0.001$) were shown to have significant main effect on maternal attachment. **Discussion:** The findings of this study revealed different contributors for adolescent attachment with father and mother. Local, cultural and economic structure of the community should be taken into account in order to plan for an intervention strategy to secure adolescent's relationship with parents.

Keywords: Adolescent, Parental attachment, Mental health, Developing country, Risk behaviour

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INTRODUCTION

Adolescence is a crucial period in developing social and behavioural characteristics (1). One of the main contributors to this development is the relation between adolescent and parents (1, 2). Attachment theory describes insecurity of adolescent-parent relation as a contributor to increased demonstration of both internalizing and externalizing behaviours including anxiety, depression, suicide attempt as well as peer attachment difficulties among adolescents (2-6). It is also shown that discrepancy between adolescent and parents might in part result in lack of complete knowledge of the adolescent by the parents that can result in insecure relationships between adolescent and parents and, thus, increase psychological symptoms in adolescents (7). Some of the reasons for the insecured attachment to parents and delinquency in adolescents include puberty related psychological changes as well as reduced emotional dependence towards parents (8).

It was previously shown that along with the development in economy, the prevalence of non- communicable diseases increases among adults and on the other hand behavioural risks also increase among adolescents due to increased population of the youth, scarcity of resources and higher youth related health problems in developing countries (9,10). These behavioural risks include smoking, drug and alcohol abuse (11, 12, 13). Religious delinquency and psychosocial distress were also reported among adolescents and their parents during the community modernization (13, 14). Moreover, a good attachment with parents and parental supervision were shown to have a protective effect against conduct and behavioural disorders in developing countries (15). Therefore understanding the contributors to adolescent-parent attachment is of great importance in primary prevention against future behavioural disorders (16).

Johor is one of the states of Malaysia located in south east of the Peninsular Malaysia and is one of the most developed states in Malaysia (17). Johor's economy is based on agriculture, manufacturing, tourism and commerce (18, 19). Pasir Gudang is one of the districts in Johor state that underwent drastic economic changes during the past decades. These changes have resulted in urbanization and consequently cultural and social changes in the region (20). Therefore, it is hypothesised that adolescents in this city might be at risk of insecure attachment with parents. Understanding the contributors to parental attachment in this region will provide beneficial information for health policy makers and health care providers in addressing behavioural problems of adolescents.

The aim of this study was to identify the social, economic and behavioural contributors to adolescent attachment to parents in Pasir Gudang urbanized district.

MATERIALS AND METHODS

Study design and sampling

A cross sectional study was conducted at 10 randomly selected secondary schools out of 35 secondary school in Pasir Gudang district, Johor, Malaysia from July 2011 to January 2012. A total of 3000 participants were recruited among secondary school students by using multistage cluster sampling method. The inclusion criteria included being resident and live in Pasir Gudang district, being registered in secondary school, and aged between 13 to 17 years. While participants with mental retardation and communication problems as well as those with diagnosed mental illnesses were excluded from the study.

Research instruments

A self-administered pretested questionnaire in Malay language was used for data collection (21, 22). Before the distribution of questionnaires, the purpose of the study was explained to students and consent form was collected. The questionnaires was distributed in the classroom and supervised by researchers. The participants spent an average of 20 minutes to complete the questionnaire and were collected immediately upon completion. The questionnaire obtained information on respondents' socio demographic characteristics, inventory of parent and peer attachment and depression, anxiety and stress of students.

Socio demographic characteristics included: age, gender, family size, total family monthly income, maternal and paternal education. Students were also asked about risky behaviours such as: experience of smoking, drinking alcoholic, illicit drugs use and having intimate relations with others. Responses were measured using the nominal scale of "Yes", "No" and "Do not know". Participants were given a choice of "not willing to answer" for questions including parental education level and employment, family monthly income, smoking, intimate relation and alcohol use as well as parental current marital status.

Inventory of parent and peer attachment (IPPA) questionnaire assesses the perception of adolescent subject towards his/her attachment with parents and peers (23). IPAA has 3 subscales including the relationship between adolescent and father, mother and peers (23). Each subscale includes 25 questions each question is rated using a 5 point Likert scale ranging from 1= almost never to 5=almost always (23). The total of scores in each subscale was considered as the IPPA score for that subscale (23). Higher IPPA scores indicated better attachment status (23). The 2 subscales for the attachment with father and mother were used in this study. In this study the Malay translation of the IPPA with acceptable Cronbach's alpha for father (0.87) and mother (0.84) subscales was used.

Depression anxiety and stress questionnaire (DASS-21) is a short form of the DASS-42 questionnaire that assesses three subscales including depression, anxiety and stress on a 4- point Likert scale ranging from 0 (Did not apply to me at all) to 4 (Applied to me very much or most of the time)(24). The Malay translated version of the DASS-21 with adequate validity and reliability was used in the present study (22).

Ethical consideration

Ethical clearance was obtained from the Medical Research Ethics Committee of the Faculty of Medicine and Health Sciences, University Putra Malaysia (Reference no: UPM/FPSK/100-9/2-MJKEtikaPen(SPP3621(U)_

Table I. Demographic characteristics of study participants (n=2980)

	No	(%)
Age (Mean ± SD)	14.3±1.2	
Number of siblings (Mean ± SD)	2.0 ±1.0	
Family size (Mean ± SD)	2.0± 0.0	
Child order in family (Mean ± SD)	2.0 ±2.0	
CGPA (Mean ± SD)	1.9±0.6	
Gender		
Male	1398	46.9
Female	1582	53.1
Ethnicity		
Malay	1605	53.9
Chinese	961	32.2
Indian	351	11.8
Other	63	2.1
Religion		
Islam	1617	54.3
Buddha	846	28.4
Hindu	323	10.8
Christian	171	5.7
Other	23	0.8
School Form of study		
1st Form	1051	35.3
2nd Form	904	30.3
4th Form	1025	34.4
Living companying person		
Father and mother	2628	88.4
Single parent	270	9.1
Care giver	76	2.6
Paternal education level		
Primary school	343	11.5
Secondary school	1202	40.3
College/university	366	12.3
No education	33	1.1
Maternal education level		
Primary school	316	10.6
Secondary school	1399	46.9
College/university	309	10.4
No education	52	1.7
Paternal employment		
Governmental	550	18.5
Private	1346	45.2
Self employed	809	27.1
No job	99	3.3
Maternal employment		
Governmental	298	10.0
Private	520	17.4
Self employed	362	12.1
No job	1741	58.4
Total monthly income		
>3000 RM*	531	17.8
1000-3000 RM	1061	35.6
<1000 RM	543	18.2

CGPA=Cumulative Grade Point Average *USD 1= RM 4.00

Table II. Risk behaviours of participants (n=2980)

Risk factors	No	%
History of smoking		
Yes	476	16.6
No	2386	83.4
Total	2862	100.0
History of drug use		
Yes	40	1.4
No	2796	98.6
Total	2836	100.0
History of alcohol use		
Yes	410	14.4
No	2434	85.6
Total	2844	100.0
History of intimate relations		
Yes	78	2.7
No	2792	97.3
Total	2870	100.0

April(12)08). A written consent was taken from each student and their parents one day before data collection

Statistical analysis

Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) program version 19.0.0 (IBM SPSS statistics, Chicago, Illinois). Descriptive analysis was used for describing variables using mean and standard deviation (SD). The analysis of covariance (ANCOVA) was performed to assess the main effect of study parameters on IPPA scores for father and mother attachment with IPPA scores as dependent variable, categorical variables, including gender, ethnicity, paternal and maternal education and occupation and etc., and continuous variables including age, Cumulative Grade Point Average (CGPA), family size and scores for depression, anxiety and stress as covariates. Covariates were treated as factors in the analysis. The confidence interval was considered as 95% and p values smaller than 0.05 were considered as statistically significant.

RESULTS

Response rate

A total of 3000 students were selected as the sample of this study. However, 120 (0.7%) respondents refused to participate. The response rate derived in this study was 99.3%.

Socio-demographic characteristics of the respondents

Table I shows the distribution of respondents according to their demographic characteristics. The mean age of respondents was 14.39±1.28 years old, and 46.9% and 53.1% of them were boy and girl, respectively. The majority of them were Malay 1605 (53.9%) and Muslim 1617(54.3%) with family income 1000-3000RM (35.6%). Regarding the parental and maternal

Table III. ANCOVA of the min effect of study parameters on IPPA scores of attachment to mother and father

	Attachment	F	P-value	Partial eta square
Age(years)	Mother	5.27	0.19	0.002
	Father	8.92	0.003*	0.008
Number of siblings	Mother	0.32	0.57	0.000
	Father	0.20	0.65	0.000
Family size	Mother	0.92	0.40	0.002
	Father	1.21	0.30	0.002
Child order in family	Mother	3.84	0.05	0.003
	Father	0.35	0.55	0.000
CGPA	Mother	20.97	<0.001*	0.018
	Father	9.52	0.002*	0.008
Gender	Mother	5.73	0.02*	0.005
	Father	1.73	0.19	0.002
Ethnicity	Mother	0.88	0.45	0.002
	Father	3.67	0.01*	0.010
School Form of study	Mother	4.34	0.01*	0.008
	Father	8.93	>0.001*	0.016
Living company	Mother	2.53	0.06	0.007
	Father	0.52	0.66	0.001
Parental marital status	Mother	1.39	0.24	0.004
	Father	1.89	0.13	0.005
Paternal education level	Mother	0.96	0.43	0.003
	Father	3.62	0.006*	0.006
Maternal education level	Mother	1.68	0.15	0.006
	Father	2.47	0.04*	0.009
Paternal employment	Mother	0.81	0.51	0.003
	Father	1.80	0.13	0.006
Maternal employment	Mother	0.55	0.70	0.002
	Father	280.08	0.26	0.005
Total monthly income	Mother	0.25	0.77	0.000
	Father	2.29	0.10	0.004
Depression	Mother	81.99	<0.001*	0.067
	Father	65.37	<0.001*	0.055
Anxiety	Mother	0.50	0.48	0.000
	Father	0.64	0.42	0.001
Stress	Mother	11.36	0.001*	0.010
	Father	2.23	0.13	0.002
Smoking	Mother	0.97	0.38	0.002
	Father	0.71	0.49	0.001
Drug use	Mother	17.32	0.79	0.000
	Father	1.30	0.25	0.001
Alcohol use	Mother	0.55	0.46	0.000
	Father	57.10	0.60	0.000
Intimate relation	Mother	2.96	0.05	0.005
	Father	3.93	0.02*	0.007

*Significant at level p<0.05

level of education, majority of them had secondary school (40.3% and 46.9%, respectively). In terms of levels of study among students, the percentages were quite balanced at 35.3%, 30.3% and 34.4% of the participants being in Forms 1, 2 and 4, respectively. The rest of information was mention in table I.

Risky behaviours of respondents

Table II shows the distribution of respondents according to their risky behaviours. Overall, (16.6%, 14.4%) of them had history of smoking and alcohol use, respectively. Out of 2836 participants, only 40 (1.4%) of them had history of drug use.

Parent attachment and psychological issue

Based on the result obtained from this study, the Mean ± SD for IPPA score for mother and father attachment were (90.0 ± 28.0 and 86.0 ± 25.0) respectively. The Mean ± SD for DASS-21 subscale scores were 8.0± 10.0 for depression, 10.0 ± 10.0 for anxiety and 12.0 ± 10.0 for stress. Also, there was a significant main effect for CGPA, depression score and school year ($p<0.05$) on both father and mother attachment scores.

Effect of study variables on IPPA scores of attachment to father and mother

Table III shows the main effect of study parameters on IPPA scores of attachment to father and mother. The result of study shows that age (p=0.003), ethnicity (p=0.01), history of intimate relationship (p=0.02), paternal education level (p=0.006) and maternal education level (p=0.04) had a significantly associated with scores of attachment to father. Among the ethnicities, Chinese ethnicity had significantly lower attachment scores than the Indian (p=0.01) and other ethnicities (p=0.01). IPPA score was significantly higher among those adolescents who refused to reveal their intimate relations compared to those who reported no intimate relations (p=0.02) and those who admitted performing the intimate relations (p=0.01). IPPA scores were significantly higher among those had fathers with degree (p=0.001) and non-educated mothers (p=0.01) compared to those whose father and mother had primary and secondary school education.

Based on the table 3, gender (p=0.02) and stress (p=0.001) had a significant main effect on scores of attachment to mother. Female adolescents showed significantly higher maternal attachment scores compared with male adolescents (p=0.01).

DISCUSSION

Adolescent risk behaviours such as experience of smoking, drinking alcoholic, illicit drugs use and having intimate relations with others which initiated during adolescence and the frequency of engagement in behaviours rises with increasing age are associated

with increased risk of morbidity and mortality (25). In this study, the prevalence of smoking was identified to be 16.6% which was in line with finding of other studies which reported prevalence of smoking to be between 7% and 30% in developing countries (26, 27). In the current study also 13.8% of adolescents consume alcohol which is similar to previous studies in Malaysia (28), Thailand (29), Seychelles (27) and Nigeria (30) with range of alcohol consumption among adolescents between 4.1% and 30%. The consumption of alcohol has a negative impact of performance of adolescence in school through the low educational achievement and high absenteeism rate (31).

The present study revealed that, 1.3% of adolescents used illicit drugs which is comparable with the previous study done by Yusoff et al. (2014) indicated that 1.7% of Malaysian adolescents used illicit drugs (32). On the other hand, it was previously reported that 8% to 17% of adolescents reported using drugs, which was higher than the findings of this study (27, 33). Studies reported the consumption of drugs cause a progressive depressive mood among the drug users (32, 34, 35). The prevalence of intimate relationship was reported as 2.6% in this study while the prevalence of sexual relationship was previously reported to be between 7.8% and 20.6% (36-38).

The overall findings of this study regarding the presence of risky behaviours among the sample of Malaysian adolescents revealed that risky behaviours including smoking, illicit drug and alcohol use as well as intimate sexual relations do exist among the study population although the observed prevalence of these behaviours were lower than the previously reported national and regional studies in terms of intimate sexual relations (39, 40). The difference between the observed prevalence in this study and the previous studies might be due to the presence of subjects who refused to answer this question. It was previously shown that there is a tendency in the adolescents in revealing their sexual relations (39, 40). Since the study methodology included data collection from the students in the form of self-reports, no in-depth information could be obtained from them because refused to reveal their sexual relations.

A secure parent attachment plays substantial role in prevention of psychological issue such as depression, anxiety, stress and development of self-esteem among children and adolescents (5, 41). This study revealed that although having common contributors, adolescents' attachment to father and mother, are affected by different characteristics of the adolescents. This difference was also found in previous studies (42, 43). In this study CGPA, adolescent depression score and school year were shown to have a significant main effect on both paternal and maternal attachment. Seeds et al.(44) in 2010 reported that both paternal and maternal insecure attachment can significantly increase depression in adolescents (44). This was in line with the findings of this study that observed higher depression scores among adolescents with more insecure attachment to either parent. Ehlrich et al.(6) in 2011 also conducted a study on 189 eleventh grade adolescents and found that depression had a main effect on both paternal and maternal attachment (6). This finding was also in congruent with the findings of the current study. It was previously observed that the security of attachment between parents and adolescents improves when the adolescent's year of education increases (45). It is hypothesised that parent adolescent attachment improves by aging of the adolescent since both sides learn how to cope with each other (45). CGPA was also found to have a significant effect on parental attachment in this study. It was emphasized that parent attachment was indeed positively related to students' motivation to succeed academically because parents provide their children with a secure emotional foundation, better attention to lessons and participation in school which are necessary for academic competence and achievement (46, 47). In a study on 205 adolescents by Muller et al. (48) in 2011 reported a significant effect of parental attachment on adolescent's school performance (48). This finding was also in line with the previous studies performed on adolescents in developed and developing countries (45, 46). A secure parental attachment results in better competence of the adolescent in school and therefore can be related to better achievements (47).

In this study age, ethnicity, history of intimate relationship, paternal education level and maternal education level had a significant main effect on paternal attachment. It was shown previously that adolescents of different races demonstrate different attachments to parents due to the cultural differences (49). To the best of our knowledge this study is the first study that assessed the effect of ethnicity on adolescents' parental attachment in South-East Asia. Furthermore, Brook et al. (2010) reported that a more secure attachment of father with the adolescent child may result in less sexual risk behaviours in the adolescent which was in line with the findings of this study (50). Buits et al. (2002) performed a study on 288 families and found that age had a significant negative effect on attachment to both parents while the current study only found a positive effect for age of adolescents and paternal attachment (51).

This difference might be due to two differences in subjects' characteristics between the studies: firstly, the sample size in the Buist et al. (51) study in 2002 was lower than the current study and secondly Buist et al. (2002) performed their study on middle class, 2-parent adolescents (51) while the current study included adolescents of single parents as well

as different economic backgrounds. The findings of this study suggest that the peer attachment is not so powerful probably due to the stress of a rapidly growing society and thus results in the higher reliance of the adolescents of both genders on their relationship with their protector who is their father. Gungor et al. (2010) performed a cross cultural study on 262 Turks and 262 Belgium adolescents (52). They found that among the Turk population, who are related to developing society, both maternal and paternal education was associated with their attachment to adolescents (52). It is hypothesised that availability of father in time of need is crucial in building the attachment in their adolescent children (53). This study revealed that parents who were not educated showed the highest attachment to their adolescent children followed by parents with graduate/university degrees. It seems that what these two groups have in common is the availability of father for the adolescent and this might be the reason of the reported good attachment. This study also showed that adolescents who have mothers with lower levels of education have more secure attachment with their fathers. This might be caused by higher adolescents' trust and reliance to an educated father when their mothers had lower levels of education.

Moreover, this study revealed a significant main effect for gender, child order, those who live with the child and stress on the maternal attachment. It was previously shown that adolescents produce a stronger attachment to their parent with the same sex (5). Moreover, mothers are the first choice of referral in terms of stress, therefore it is acceptable that adolescents with higher levels of stress provide a better attachment with their mothers (54). This study revealed that adolescents with higher level of stress produce a more secure attachment with their mothers. This better attachment is due to the role of mother in culminating children as well as provides them with autonomy (55). It has been documented that parental separation results in internalizing and externalizing problems in adolescents (56). In this study adolescents reported a better attachment to their single mothers (parental separation). More secure attachment to mother might be as the result of the problems these children might encounter in their relationship with others as well as their higher level of stress due to lack of father, who is considered as the primary protector of the child (57).

The overall findings of this study are in congruent with the attachment theory. Attachment theory emphasizes the importance of the early parent-child relationship in developing appropriate social, emotional, and cognitive development in children and adolescent (57, 58). Failure to form this early childhood parental bond will ostensibly give rise to reactive attachment disorder (57, 58). Specifically, Brown et al. (2001) reported that parental attachment security is significant related to adolescents' attachment to peers, their empathy for others, their pro-social behaviour and self-esteem among other developmental outcomes (59).

This study also provides information on the predictors of a secure relationship between adolescent and parents in a fast growing society that is characterized by highly distressing for parents.

There are some limitations in this research. Firstly, this study used questionnaires in order to assess the attachment and mental health status of the subjects. Self-report questionnaires may be less accurate measures and cause low effect size for most of the variables; might be improved if other forms of data collection were performed for this study. Thus it seems reasonable for further researchers to use mixed modes of data collection included: (focus group discussion, individual interviews,) and involve teachers as well as parents and adolescents in the data collection. Secondly, this study was recruiting respondents from the urban area; therefore, measuring the same factors among rural students is needed. Another limitation of this study is, although we found that Pasir Gudang had the highest number of psychosocial problems in Malaysia, this study only covered a small area of Johor Bahru. Thus, this study is not a representation of adolescents in the whole of Malaysia. Finally, the cross-sectional study design is not suitable to clarify the cause-and-effect relationships between the variables. Hence, longitudinal studies are more suitable for use to investigate relationships between variables deeply.

CONCLUSION

This study revealed that different characteristics contributed to paternal and maternal attachment. It is recommended that social and cultural factors as well as individual characteristics of the adolescents should be considered in planning intervention programs to improve parental attachment of adolescents.

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DISCLOSURE

All authors report no conflict of interest.

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