

**The parenting practices in Hong Kong :  
A community survey on parents of 4-year-old children (2014)**

**Family Health Service  
Department of Health**

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## **Executive Summary**

### **Background**

Early prevention of childhood behaviour problems has become a public health issue. As a public health initiative to prevent child behaviour problems and enhance child health, the Family Health Service (FHS) rolled out a parenting programme in all Maternal and Child Health Centres (MCHCs) since September 2002. A community survey to investigate the pattern of parenting practices and attitude, in terms of parental perception of child behaviour problems, parental stress and parent sense of competence was conducted in August 2002 (Department of Health, 2004), prior to the introduction of the parenting programme. The survey revealed that 10.5% of children aged 4 years might have clinically significant behaviour problems. Parents of children having more behaviour problems were more likely to report higher parenting stress, lower parenting efficacy and lower marital satisfaction. Families with parents of lower educational level, lower occupational status and lower family income reported higher problem levels in terms of parenting and family support variables. Ten years have passed after the implementation of the territory-wide parenting programme of FHS. Change in demographic trends and socio-ecological context in society might affect the mode and involvement of parents in child care and be associated with changes in parenting views and practices. It would be interesting to examine the current parenting practices, child behaviour problems and the use of parenting resources locally.

### **Design and Findings**

The participants were Chinese parents with children aged 4 years (+/- 6 months) who had registered with MCHCs and were living in Hong Kong during the study period. Stratified sampling was used. A total of 844 returned questionnaires were used for analysis, representing a response rate of 75.3%. The set of questionnaires included measures on child behaviour problems, parenting and family support variables, and access to parenting education.

The results indicated that there were 9.6% of parents reported their children had clinically significant behaviour problems. Inter-relationships among child behaviour variables, parenting variables and family support variables were found to be similar to the survey results of 2004. A higher behaviour problem score was found with mothers having shorter length of residence, or primary/below primary education. Fathers in the managerial/administrative occupations tended to have lower number of child behaviour problems. Social support and some demographic variables were

found to have association with the perception of child behaviour problem, parenting stress and marital relationship. Parents with higher parenting stress were more likely to lack social support, having lower family income and being mothers of younger age or shorter length of residence. Lacking support in emergency child care and children with more siblings were associated with the problematic interaction between parent and child, which contributes to parenting stress.

Regarding parenting education experience, the present results suggested that fathers sought for parenting knowledge and skills as much as mothers whereas in the similar study in 2004, fathers who never accessed any parenting education resources outnumbered mothers. About 75% of participants reported that they often or sometimes used MCHC's parenting education resources. Mothers who used these resources were more likely to be of higher educational level. When asked about the views on the parenting information provided, about 50% of participants felt child development, children's diet and nutrition, and physical care were useful. About 35% felt discipline and parent-child communication were useful. Analyses were made to examine the child behaviour, parenting and marital relationship profiles of the users and non-users of the MCHC parenting education resources. There were more parents having high parental distress and problematic parent-child interaction among the non-users compared to the users.

Despite the change of family structure with decrease in participants living with extended families, there was a rise in having grandparents and domestic helpers for childcare in the present study as compared with the 2004 survey.

### **Implications for Service Provision**

The present survey indicates that there are 9.6% of children who may have behaviour problems that are clinically significant. The difference with the result in 2004 was not significant. Similar to other studies, child behaviour problem and parenting stress remained to be higher in families with psychosocial risks such as lower income, lack of social support and young parents. Although the percentage of parents having access to parenting resources was higher, how to reach these needy parents remain to be the common issue to be further explored.

With the increasing participation of fathers in parenting, the needs of fathers would be an important focus in parenting programme planning. Also, with the rising trend of having grandparents as a valuable source of childcare support, the MCHC parenting programme has sought to involve both parents and grandparents as the

recipients of updated parenting knowledge and skills. As there seems to be more problematic parent-child interactions in the non-users of parenting resources, there is a need to enhance the accessibility for parents to the educational information. Use of electronic educational information such as e-learning and public talks outside MCHCs will be the trend of parenting education service.

## **Chapter 1**

### **Introduction**

#### **1.1 Background**

Early childhood behaviour problem has been shown to be a risk for emotional and conduct problems as well as alcohol and drug misuse problems in adolescent and adulthood (Barkley, Fischer, Edelbrock & Smallish, 1991; Moffit & Caspi, 2001; Patterson, Forgatch, Yoerger & Stoolmiller, 1998; Webster-Stratton & Hancock, 1998). While child behaviour problem has been found to be associated with parenting difficulties and inconsistent parenting discipline (Webster-Stratton & Taylor, 2001), studies pointed out that various factors would influence parent-child interaction and parenting practices. Lack of social support and unsatisfactory marital relationship affect the quality of parenting ; high level of family stress also increases the extent of ineffective parenting (Olds, 1988; Webster-Stratton, 1989). Also, parental socioeconomic conditions such as education and income were found to be positively associated with parenting quality. Parenting quality was found to be higher among those with higher education or higher income (Reeves & Howard, 2013).

Early prevention of childhood behaviour problems has become a public health issue. Systematic reviews of randomized controlled trials (Barlow, 1999; Webster-Stratton & Taylor, 2001; Barlow, Coren & Stewart-Brown, 2003; Barlow & Parsons, 2003; Barlow, Parsons & Stewart-Brown, 2005) support that parent training programmes are effective in improving behaviour problems of children and aspects of parental psychosocial health e.g. anxiety, depression and stress in the short-term although long-term benefits remained to be established. Reeves and colleagues (Reeves & Howard, 2013; Sawhill, Reeves & Howard, 2013) also advocated to narrow the parenting gap due to their income, education and opportunity by improving parents' emotional and cognitive stimulation skills using evidence-based parenting support programmes.

As a public health initiative to prevent child behaviour problems and enhance child health, the Family Health Service (FHS) rolled out a parenting programme in all Maternal and Child Health Centres (MCHCs) since September 2002. The MCHCs serve about 90% of newborn infants and the integrated child health and development programme is offered up to the age of 5. The programme, with its Universal and Intensive components, aims to equip parents of all children attending MCHCs with the necessary knowledge and skills to bring up happy and well-adjusted children. The Universal programme, provided to all parents, is delivered through multi-channel including comprehensive information leaflets, videos, electronic media, workshops, hotlines and individual counseling. It addresses a wide range of age-specific childcare

issues, e.g. newborn care, breastfeeding and nutrition, home safety, oral health as well as issues of psychosocial importance, e.g. preparation for parenthood, responsive care, promoting child development, behaviour management. For parents of children with early signs of behaviour problems or encountering parenting difficulties, the Positive Parenting Programme (Triple P) (Turner, Markie-Dadds & Sanders, 2002; Leung, Sanders, Leung, Mak & Lau, 2003) is delivered as the Intensive programme.

A community survey to investigate the pattern of parenting practices and attitude, in terms of parental perception of child behaviour problems, parental stress and parent sense of competence was conducted in August 2002 (Department of Health, 2004), prior to the introduction of the parenting programme. The survey revealed that 10.5% of children aged 4 years might have clinically significant behaviour problems. Parents of children having more behaviour problems were more likely to report higher parenting stress, lower parenting efficacy and lower marital satisfaction. Families with parents of lower educational level, lower occupational status and lower family income reported higher problem levels in terms of parenting and family support variables. As far as parenting education is concerned, the study results showed that fathers and younger parents were less likely to participate in parenting education. Parents' most preferred parenting education resources were from schools and printed media.

After the parenting programme of FHS has launched territory-wide for 10 years, it would be interesting to examine the current parenting practices, child behaviour problems and the use of parenting resources locally.

## **1.2 Aim and objectives**

The purpose of the present study is to investigate the pattern of parenting practices among parents of four-year-old children and factors influencing the pattern. This study will contribute to our understanding of the following parameters over time as assessed by various standardized scales:

- the magnitude of child behaviour problems
- the magnitude of parenting problems (parenting stress, dysfunctional discipline style and parenting efficacy)
- the level of family support (marital relationship and social support)
- the relationship between child behaviour problems, parenting problems, family support and family demographics
- utilisation of MCHC parenting programme (frequency, types and preferences of delivery)

## **Chapter 2**

### **Method**

#### **2.1 Study design and sampling**

MCHCs have a coverage rate of over 90% for all newborns of local mothers in Hong Kong. The participants were Chinese parents with children aged 4 years (+/- 6 months) who had registered with MCHCs and were Hong Kong residents living in Hong Kong during the study period. Stratified sampling was used. The sampling frame was based on the electronic Child Health Service System (CHSS). The calculation of the sample size was based on the 10.5% prevalence of child behaviour problems in the DH community survey conducted in 2004 to achieve 2% precision and anticipated prevalence (8.5% - 12.5%) at 95% confidence interval. By doing so, a sample size of 903 would be sufficient. Assuming a 60% response rate, therefore a sample of 1500 participants was required.

The MCHCs in the entire territory were divided into four regions (New Territories East, New Territories West, Kowloon and Hong Kong Island). Target children were randomly selected from the MCHCs in each region. The record numbers of all registered children born between 1 September 2008 and 31 August 2009 with either parent being Hong Kong resident were entered into a list. The number selected from each region was proportional to the newborns registered in that region. The mailing addresses and contact numbers of the selected target participants were retrieved from the CHSS.

A total of 1500 questionnaires were sent out. Among them, 379 target participants were not contactable and 161 target participants indicated refusal to participate. A total of 960 questionnaires were returned. Among the returned questionnaires, 81 had incomplete data and 35 participants were either unable to read Chinese or not living in Hong Kong, or their children's age fell out of the recruitment criteria at time of questionnaire completion. They were thus excluded from further analysis. The final sample of participants included in the actual analysis was 844. The response rate was 75.3%<sup>1</sup>.

#### **2.2 Measures**

The current study used the following set of questionnaires.

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<sup>1</sup> Response rate = No. of completed questionnaires used for analysis / (no. of invitation letter sent – no. of non-contactable clients)

### **2.2.1 Child behaviour problems**

Eyberg Child Behaviour Inventory (ECBI) (Eyberg & Ross, 1978) — This is a 36-item multi-dimensional measure of parental perception of disruptive behaviour in children and incorporates two scores, intensity score and problem score. The intensity score indicates the frequency of problematic behaviour and the problem score indicates the number of behaviour considered problematic by parents. High scores indicate a high frequency and high number of problematic behaviour. The Chinese version of the ECBI has been validated in which the reliability estimates for the intensity and problem scales were .94 and .93, respectively (Education and Manpower Bureau, 2002).

### **2.2.2 Parenting variables**

Parenting Scale (PS) (Arnold, O’Leary, Wolff & Acker, 1993) — This 30-item questionnaire measures dysfunctional discipline styles in parents. Only the two subscales on Laxness (PS-LX) and Over-reactivity (PS-OR) were used to assess parenting practice and attitude (21 items). High score in PS-LX indicates high permissiveness in discipline; high score in PS-OR indicates high in authoritarian discipline and irritability. Internal consistency and test-retest reliability of laxness are .83 and .84; whereas those of over-reactivity are .82 and .83 (Turner et al., 2002).

Parenting Stress Index (PSI)-short form (Abidin, 1990) — Two factors of the questionnaire were used: Parental Distress (PSI-PD) measuring an impaired sense of parental competence and depression and Parent-Child Dysfunctional Interaction (PSI-PCDI) measuring unsatisfactory parent-child interaction (24 items). High scores indicate high in stress or dysfunctional interaction. The Chinese version of the PSI was validated and the overall reliability was .89 (Lam, 1999).

Parent Sense of Competence Scale (PSOC) (Gibaud-Wallston & Wandersman, 1978) — The feelings of efficacy as a parent will be assessed on a 6-point scale by using only the 7 items in the Efficacy subscale. High score means high in parenting efficacy. The Chinese version of PSOC was validated with internal consistency (Cronbach’s alpha=.85) and test-retest reliability (intraclass correlation coefficient=.87) (Ngai, Chan & Holroyd, 2007).

### **2.2.3 Family support variables**

Relationship Quality Index (RQI) (Norton, 1983) — This is a 6-item index of marital or relationship quality and satisfaction with score ranges from 6 to 45. It has excellent reliability of .97. High score indicates high relationship quality and satisfaction.

Social support — this consists of three questions requesting participants to indicate the availability of support in three areas: (a) emergency childcare; (b) sharing in times of stress and (c) financial assistance.

#### **2.2.4 Parenting education**

Use of parenting education of MCHC — this consisted of a series of questions asking participants' experience of parenting education in MCHC such as the formats and topics of educational information and the frequency of use.

Access to other sources of parenting education — participants were asked to indicate their access to different sources of parenting information and the format of information they liked to receive.

#### **2.2.5 Other information**

Social and demographic information — participants were requested to supply basic information on issues including sex, age, length of residence in Hong Kong and education of the target child and both parents. Other demographic information asked included occupation of both parents, marital status, relationship of participant to target child, family income and public assistance status. In addition, participants were asked about whether the target child was living with parents and presence of caregiver(s) other than parents.

### **2.3 Procedures**

An invitation letter explaining the purpose of the survey and a consent form were sent to the selected families together with the whole set of questionnaires. One of the parents was requested to complete the questionnaires. If both parents rarely saw the child, such as always stayed outside Hong Kong, the main caregiver was invited instead. Trained research assistants called the participants later to check the completion of the questionnaires and to answer any query that parents might encounter in filling the forms. Participants were asked to return the consent form and the completed questionnaires with the stamped envelope provided. The questionnaires were anonymous and strict confidentiality was observed.

### **2.4 Data analysis**

The main statistical techniques used for data analysis were independent t test, analysis of variance (ANOVA) and multivariate analysis of variance (MANOVA). The dependent variables were child behaviour problems, parenting and family support variables and access to parenting education. The independent variables were the

socioeconomic and demographic factors. A stringent alpha level of  $< .001$  was adopted in view of the large number of analyses performed and the issue of inflated alpha. When there were categories with small cell sizes, data were combined. Multiple regression was also carried out to examine the association of various independent variables (socioeconomic status and demographics) with child behaviour problems and parenting stress. All variables were entered at the same time.

## Chapter 3

### Results

#### 3.1 The sample

##### 3.1.1 General characteristics of the child and families

There were a total of 844 set of questionnaires analysed. Among the respondents were 726 biological mothers (86%), 117 biological fathers (13.9%) and 1 grandmother (0.1%).

There were 457 boys (54.1%) and 387 girls (45.9%) included in the study. The sex ratio was similar to the 2011 census figures (Census and Statistics Department, 2012a). The mean age of the target children was 4.29 years ( $SD = .34$ ) and their mean length of residence in Hong Kong was 4.25 years ( $SD = .46$ ). All children received preschool education with 838 (99.3%) attended regular preschools and 6 (0.7%) attended Special Child Care Centres. According to the 2011 census, the school attendance rate of children aged 3-5 years was 91%. There were 484 children (57.3%) born as the first child in the family. Among them, 239 (49.4%) were the only child.

The mean age of mothers and fathers of these children was 36.7 years ( $SD = 4.5$ ) and 39.5 years ( $SD = 5.6$ ) respectively. The mean length of residence in Hong Kong was 30.2 years ( $SD = 11.8$ ) for mothers and 36.2 years ( $SD = 9.3$ ) for fathers. According to the 2011 census, the largest percentage of mothers (66.8%) and fathers (49.6%) were in the 30 to 39 age group among households with at least one child aged 3 to 4 years old.

Regarding the educational and economic background of the families, Table 1 shows the comparison with the data of 2011 census on households with at least one child aged 3 to 4 years old and MCHC registered parents of the 4-year-old children. Comparing to the other 2 sets of data, the present sample had less parents having lower secondary level and below while there were more of tertiary education. There were 38.3% mothers and 2% fathers not engaging in employment compared to 46.6% and 8.8% respectively in the 2011 census. Comparing to the census and MCHC data, there were more fathers working in the managerial/administrative as well as clerical categories, but far less in the sales/service categories. The mothers in the present sample however engaged more in the managerial/administrative as well as clerical categories but under-represented in skilled/manual/elementary occupations. Twenty-three participants (2.7%) reported receiving Comprehensive Social Security Assistance (CSSA). This was comparable to the percentage of clients of MCHC receiving CSSA (3%).

As for family structure, the parents of 807 (95.6%) children were reported as married. There were 668 (79.1%) nuclear families, 149 (17.7%) extended families, 22 (2.6%) single-parent families and 5 (0.6%) reconstituted families.

Table 1

Comparison of Sample Characteristics with 2011 Census Data<sup>2</sup> and MCHC clients

	Present sample		2011 Census data		MCHC clients	
	Father	Mother	Male	Female	Father	Mother
<b>Education level</b>						
No schooling/kindergarten/Primary	1.7%	1.9%	5.6%	5.7%	3%	3%
Lower secondary	17.5%	11.4%	20.2%	19.6%	21%	21%
Upper secondary	31.5%	37.0%	28.0%	30.8%	34%	36%
Matriculation	3.6%	3.6%	4.6%	5.2%	5%	5%
Tertiary (non-degree course)	9.9%	12.3%	9.8%	10.4%	11%	12%
Tertiary (degree course)	36.0%	33.9%	31.9%	28.2%	27%	23%
<b>Occupation</b>						
Managerial/administrative	29.5%	18.8%	19.9%	15.7%	18.3%	12.2%
Professional	23.3%	26.1%	31.1%	36.9%	20.3%	24.2%
Clerical	10.7%	37.4%	7.2%	24.0%	10.3%	30.4%
Sales/Service	7.7%	16.1%	13.1%	18.3%	18.7%	17.1%
Skilled/manual/elementary occupations/unclassified	28.8%	1.6%	28.7%	5.1%	18.2%	2.2%
<b>Family Income</b>						
<\$4K	0.8%		1.6%		25.0%	
\$4K-\$9K	5.0%		9.6%			
\$10K<\$20K	21.0%		23.2%		28.6%	
\$20K<\$30K	15.3%		16.3%		15.6%	
\$30K<\$40K	14.1%		11.8%		10.9%	
>\$40K	43.7%		37.5%		20.0%	

For living and caring arrangements, 42.3% of participating families lived in self-purchased apartments, 22.2% lived in public housing and 18.5% in rented apartments. Among these families, 821 children lived with their parents (97.3%) at all time, 18 of them (2.1%) only during weekends and 5 (0.6%) did not live with their parents. There were 174 participants (20.6%) reported to be the only caregivers for their children, and 337 (39.9%) reported having grandparents as caregivers in addition to parents. There were 301 (35.7%) participants using domestic helpers to help look after their children. The other caregivers included relatives (2.8%) and hired childcare (0.9%).

<sup>2</sup> Domestic households with at least one child aged 3 to 4 years old

### **3.1.2 Comparison between the participants and those excluded for incomplete data and refusal to participate**

Comparing the 844 participants included in the analysis with the 81 participants with incomplete data, there were no significant differences in all socioeconomic and demographic variables except that there were more siblings for the index child in the incomplete data group ( $p = .04$ ).

For the 161 refusal cases, their socioeconomic and demographic information at time of registration was obtained from their MCHC record and compared with the corresponding information of 160 participants selected randomly from the 844 participants. Significant differences were found in a few social and demographic variables, namely, there were more boys, more working mothers, and younger fathers in the participating group when compared with the refusal group.

## **3.2 Statistical issues**

Detailed analyses of the child behaviour problems, parenting and family support variables, and their relationships with socioeconomic and demographic factors were presented in the following sections. Due to the large number of analyses and the possibility of inflated alpha, an alpha level of  $< .001$  was adopted. As many of the socioeconomic variables were associated with one another, the interpretation of the results should take this into consideration. Statistical significant results are described below. Other statistical details are listed in the Appendix.

## **3.3 Child behaviour profile**

Child behaviour problems were measured using the ECBI intensity and problem scales.

Scores for children on the ECBI-Intensity scale were normally distributed (skewness = 0.13) (Figure 1). For ECBI-Problem scale, skewed distribution was observed (skewness = 1.41), with scores ranging from 0 to 36 (Figure 2). The reliability (Cronbach Alpha) for ECBI-Intensity scale and ECBI-Problem scale were 0.91 and 0.94 respectively. The mean scores of the ECBI-Intensity scale and ECBI-Problem scale were 115.79 (95%CI = 114.35 to 117.23) and 6.77 (95%CI = 6.24 to 7.30) respectively. In the validation study of the ECBI in Hong Kong using a sample of children aged 4 to 16, the mean ECBI-Intensity score and the ECBI-Problem score were 107.25 and 7.30 respectively (Education and Manpower Bureau, 2002). From another local sample of 480 participants attending the intensive parenting programme of Triple P, with their children having a mean age of 3.28 years, their rating on ECBI-Intensity and ECBI-Problem were 130.79 and 13.68 before the intervention and 114.91 and 8.48 after programme completion (Leung, Sanders, Ip & Lau, 2006).

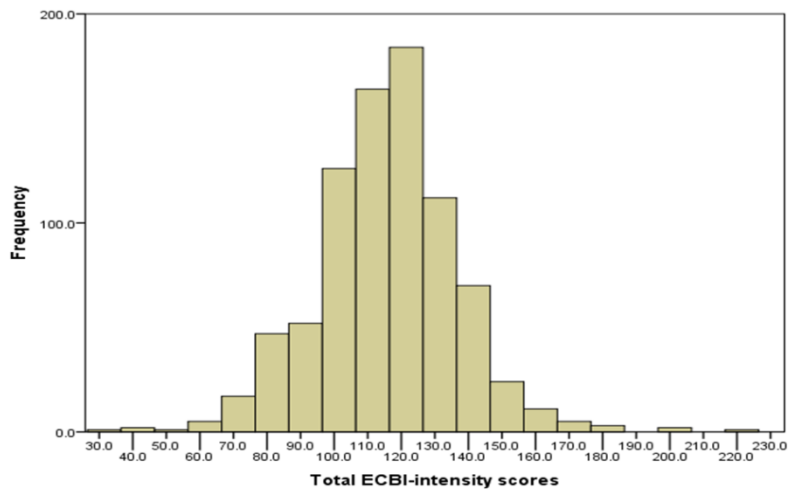


Figure 1. Distribution of ECBI-Intensity Scores

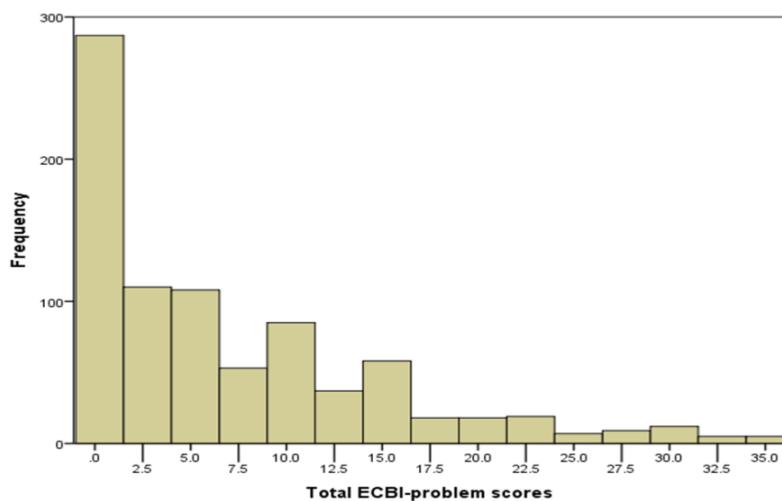


Figure 2. Distribution of ECBI-Problem Scores

Adopting both the cut-off point of 131 on the ECBI-Intensity scale and of 15 on the ECBI-Problem scale to screen for behaviour problem (Eyberg & Pincus, 1999), 79 children (9.55%) were found to be above both cut-off points. The percentage of significant behaviour problem was comparable to that (10.5%) from the DH community survey (2004).

Significant differences were found in ECBI-Problem scores related to mother's educational level, years of residence and father's occupation. Higher score was found with mothers having shorter length of residence, or primary/below primary education. Fathers in the managerial/administrative occupations scored the lowest in ECBI-Problem.

### 3.4 Family support profile

Two variables, namely social support and marital relationship, were examined.

#### 3.4.1 Social support

Table 2 shows the availability of social support of the participants. The large majority indicated some types of support in times of need.

Table 2

Availability of Social Support (n = 843)

	Available	Not available
<b>Carer for child in case of emergency</b>	767 (91.0%)	76 (9.0%)
<b>Someone to share in times of stress</b>	736 (87.3%)	107 (12.7%)
<b>Assistance in times of financial difficulty</b>	713 (84.6%)	130 (15.4%)

A series of chi square tests were conducted to examine the association between availability of social support and socioeconomic and demographic factors. The results show that those who reported to have no emergency childcare assistance tended to be families with mothers who had lower secondary or below education, engaged in lower occupation level or not working. Their household income was likely to be low too.

Families with mothers of lower educational level tended to have no one to share with in such times.

Those families who had availability of assistance in times of financial difficulty were more likely to have the index child with one/no sibling or have carers other than parents. The mother's educational level or their household income tended to be higher.

#### 3.4.2 Marital relationship

The RQI was used to measure marital relationship. A slightly skewed profile was yielded on the RQI scores (skewness = -0.87) (Figure 3). The reliability (Crobach Alpha) was 0.97. The mean score was 33.36 (95%CI = 32.78 to 33.95) which is comparable to the mean score of 33.57 in the DH community survey (2004).

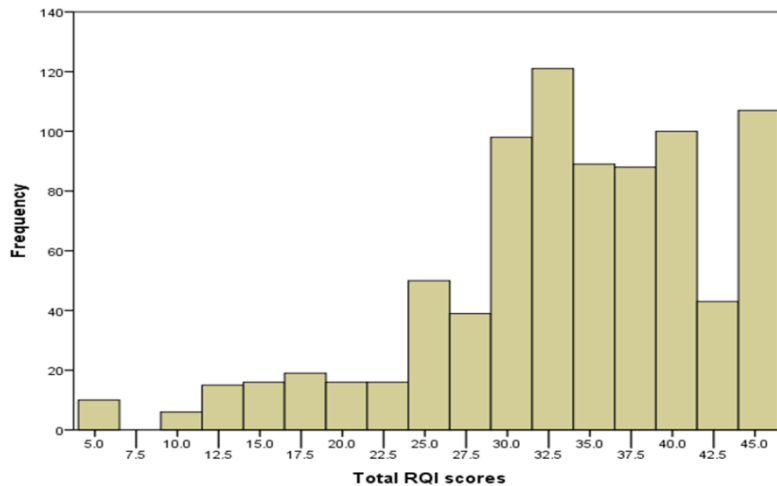


Figure 3. Distribution of RQI Scores

Significant differences were found in RQI scores of participants in a number of socioeconomic factors. Participants who reported to have higher quality marital relationship had fathers with higher status jobs or higher educational level; mothers with higher educational level and longer length of residence; and also higher in household income.

### 3.5 Parenting profile

The variables of parenting stress, dysfunctional discipline style and parenting efficacy were examined in the parenting profile.

#### 3.5.1 Parenting stress

Parenting stress was measured by the Parental Distress (PSI-PD) and the Parent-Child Dysfunctional Interaction (PSI-PCDI) subscales of the PSI. There was normal distribution in the PSI-PD scores (skewness = 0.25) and slightly skewed scores in PSI-PCDI (skewness = 0.47) (Figures 4 & 5). The reliability (Cronbach Alpha) for PSI-PD and PSI-PCDI scales were 0.87 and 0.82 respectively. The mean score for the PSI-PD was 32.66 (95%CI = 32.11 to 33.22) and for the PSI-PCDI was 25.15 (95%CI = 24.73 to 25.57). For comparison, the mean PSI-PD and PSI-PCDI scores respectively in the validation study of the Chinese PSI were 34.11 and 32.39 (Lam, 1999), 31.86 and 28.85 in the Education and Manpower Bureau validation study (2002) and, 34.05 and 27.17 in the DH community survey (2004).

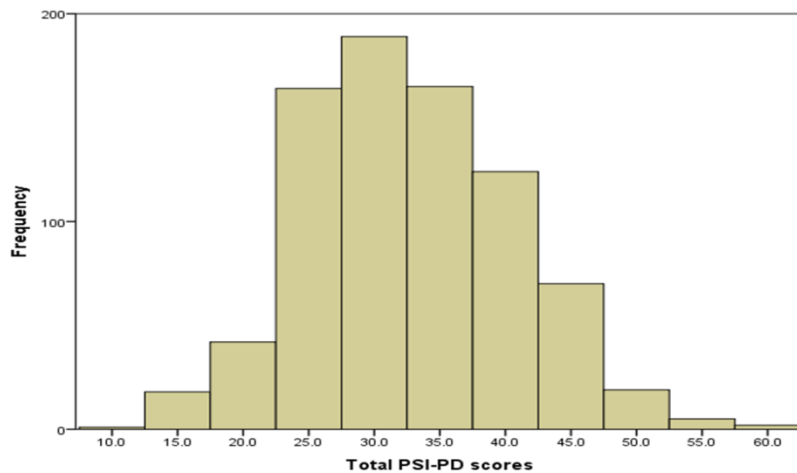


Figure 4. Distribution of PSI-PD Scores

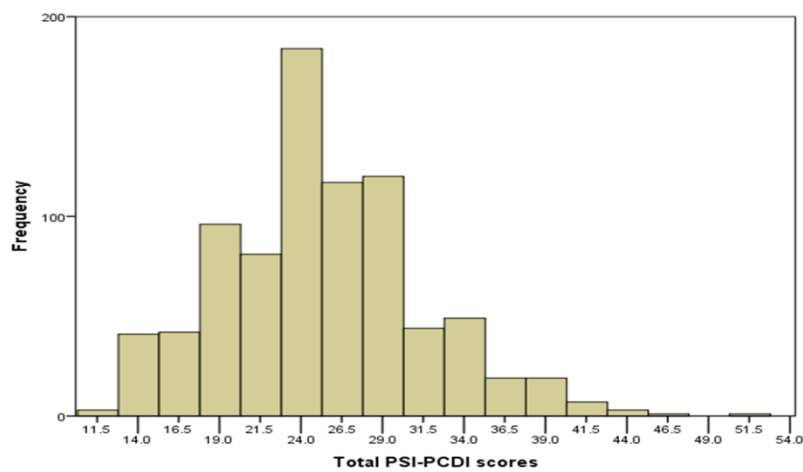


Figure 5. Distribution of PSI-PCDI Scores

Significant differences were found in scores of both PSI subscales with various social demographic variables. The mean and confidence interval scores were summarised in Table 3-5.

Significant difference was found in PSI scores by monthly household income, those with higher income had lower PSI-PD and PSI-PCDI scores (Table 3). As for mother's age, a negative correlation was found with PSI-PD scores ( $r = -0.13$ , 95%CI = -0.20 to -0.06,  $p < .001$ ,  $n = 799$ ). Table 3 showed that there were significant differences in PSI scale scores by mother's age. Those under 35 years old had higher PSI-PD and PSI-PCDI scores than those of 35 years old and above. Mother's length of residence also had a negative correlation with PSI-PD scores ( $r = -0.20$ , 95%CI = -0.26 to -0.13,  $p < .001$ ,  $n = 799$ ) and PSI-PCDI scores ( $r = -0.18$ , 95%CI = -0.24 to -0.11,  $p < .001$ ,  $n = 827$ ). The longer the length of residence, the lower the parenting stress was indicated.

Table 3

Mean PSI Scores and 95%CI by Household Income and Mother's Age

<b>Monthly Household Income</b> ( <i>n</i> = 792, <i>p</i> < .001)	<b>PSI-PD Scores</b>	<b>PSI-PCDI Scores</b>
<\$10K	35.31 (32.99 to 37.63)	27.43 (25.48 to 29.38)
\$10K < \$20K	35.29 (34.13 to 36.45)	27.49 (26.60 to 28.37)
\$20K < \$30K	32.76 (31.39 to 34.13)	25.10 (24.00 to 26.20)
\$30K < \$40K	32.31 (30.82 to 33.81)	24.75 (23.72 to 25.78)
>\$40K	31.16 (30.33 to 31.99)	23.93 (23.30 to 24.55)
<b>Mother's age group</b> ( <i>n</i> = 794, <i>p</i> < .001)	<b>PSI-PD Scores</b>	<b>PSI-PCDI Scores</b>
15 -34	34.39 (33.35 to 35.43)	26.27 (25.46 to 27.07)
35 or above	31.93 (31.29 to 32.58)	24.68 (24.19 to 25.17)

Significant differences were found in PSI scores related to the parents' educational level and occupation status (Table 4 & 5). In general, parents of higher educational level and higher occupational status had lower PSI scores.

Participants reported to have lower PSI-PCDI scores when the target child had only one or no siblings (*M* = 24.77, 95%CI = 24.31 to 25.22). Higher scores in parent-child dysfunctional interaction (PSI-PCDI) were found in those having target child with 2 or more siblings (*M* = 26.76, 95%CI = 25.79 to 27.73).

Table 4

Mean PSI Scores and 95% CI by Parents' Education Level

<b>Father's education level</b> ( <i>n</i> = 792, <i>p</i> < .001)	<b>PSI-PD Scores</b>	<b>PSI-PCDI Scores</b>
Primary education or below	34.62 (30.36 to 38.88)	25.93 (21.46 to 30.39)
Lower secondary	34.87 (33.59 to 36.15)	26.85 (25.76 to 27.94)
Upper secondary	33.03 (32.07 to 34.00)	25.51 (24.82 to 26.20)
Matriculation	30.50 (27.56 to 33.45)	24.24 (21.82 to 26.66)
Tertiary (non-degree course)	32.76 (30.90 to 34.62)	25.29 (23.95 to 26.62)
Tertiary (degree course)	31.40 (30.47 to 32.33)	24.06 (23.35 to 24.77)
<b>Mother's education level</b> ( <i>n</i> = 794, <i>p</i> < .001)	<b>PSI-PD Scores</b>	<b>PSI-PCDI Scores</b>
Primary education or below	39.65 (35.42 to 43.88)	31.43 (27.36 to 35.51)
Lower secondary	35.21 (33.62 to 36.81)	27.44 (26.28 to 28.61)
Upper secondary	33.27 (32.33 to 34.21)	26.04 (25.34 to 26.73)
Matriculation	33.75 (30.79 to 36.72)	24.15 (21.30 to 27.00)
Tertiary (non-degree course)	32.87 (31.23 to 34.50)	24.43 (23.20 to 25.66)
Tertiary (degree course)	30.68 (29.81 to 31.54)	23.55 (22.90 to 24.19)

Table 5

Mean PSI Scores and 95% CI by Parents' Occupation

<b>Father's occupation</b> (n = 791, $p < .001$ )	<b>PSI-PD Scores</b>	<b>PSI-PCDI Scores</b>
Managerial/administrative	31.59 (30.57 to 32.62)	24.17 (23.40 to 24.94)
Professional	31.01 (29.82 to 32.21)	23.95 (23.03 to 24.87)
Clerical	32.66 (30.90 to 34.41)	25.00 (23.77 to 26.24)
Sales/service	34.17 (32.14 to 36.21)	26.16 (24.81 to 27.50)
Skilled/manual/other	34.48 (33.50 to 35.46)	26.62 (25.83 to 27.40)
Non-working	35.80 (31.77 to 39.84)	29.67 (25.91 to 33.44)
<b>Mother's occupation</b> (n = 794, $p < .001$ )	<b>PSI-PD Scores</b>	<b>PSI-PCDI Scores</b>
Managerial/administrative	30.64 (29.08 to 32.21)	22.99 (21.78 to 24.21)
Professional	30.79 (29.47 to 32.12)	23.94 (22.95 to 24.93)
Clerical	32.51 (31.42 to 33.60)	24.91 (24.13 to 25.68)
Sales/service	34.33 (32.48 to 36.17)	27.18 (25.72 to 28.64)
Skilled/manual/other	32.80 (27.89 to 37.72)	23.60 (16.83 to 30.38)
Non-working	33.75 (32.83 to 34.68)	25.99 (25.28 to 26.71)

On the whole, there was a fairly consistent pattern showing parents with lower educational level, lower occupational status, lower family income, more children, younger maternal age and shorter length of residence reported higher parenting stress.

With reference to Abidin (1990), scores above the 90<sup>th</sup> percentile (PSI-PD = 36, PSI-PCDI = 27) were indicative of parenting problems. In the present sample, 282 respondents (35.3%) scored above 90<sup>th</sup> percentile for PSI-PD and there were 323 (39.1%) for PSI-PCDI. There were 174 participants (20.9%) with both PSI-PD and PSI-PCDI above the 90<sup>th</sup> percentile.

Using the PSI-PD score of 37 and PSI-PCDI score of 31 as the local cut-off scores (Department of Health, 2004), there were 249 (31.2%) and 143 (17.3%) participants respectively above the cut off scores and thus fell into the problem range. There were 92 (11.1%) participants who had both PSI subscale scores in the problem range. The percentages of problem range scores appear to be lower than those in the DH community survey (2004). The latter study had 37.7% and 25.9% respectively for PSI-PD and PSI-PCDI problem range, with 16.3% had both subscales scores fell into the problem range.

### 3.5.2 Dysfunctional discipline style

The Laxness (PS-LX) and Over-reactivity (PS-OR) subscales of the PS were used to measure discipline style. Both of the mean scores were normally distributed (PS-LX skewness = -0.27, PS-OR skewness = 0.24) (Figure 6 & 7). The reliability (Crobach

Alpha) for PS-LX and PS-OR subscales were 0.61 and 0.73 respectively. The mean scores for PS-LX and PS-OR subscales were 3.56 and 3.27 respectively. The PS-LX mean score was found to be significantly lower than that ( $M = 3.77$ , 95%CI = 3.73 to 3.81) reported in the DH community survey (2004) while the PS-OR mean scores were comparable.

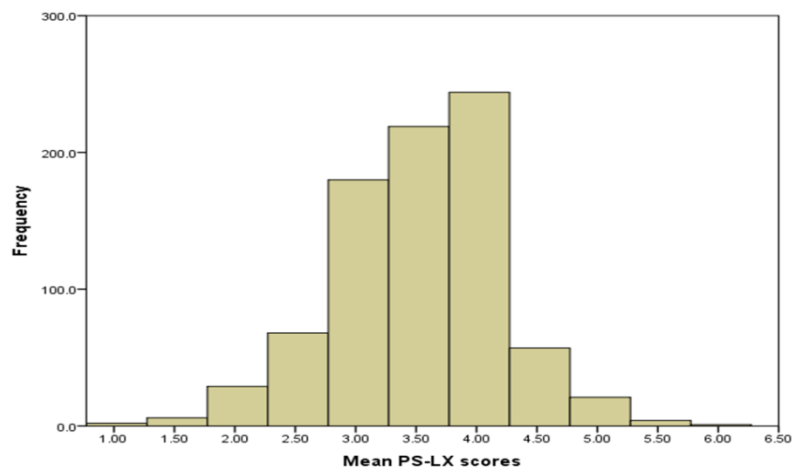


Figure 6. Distribution of PS-LX Scores

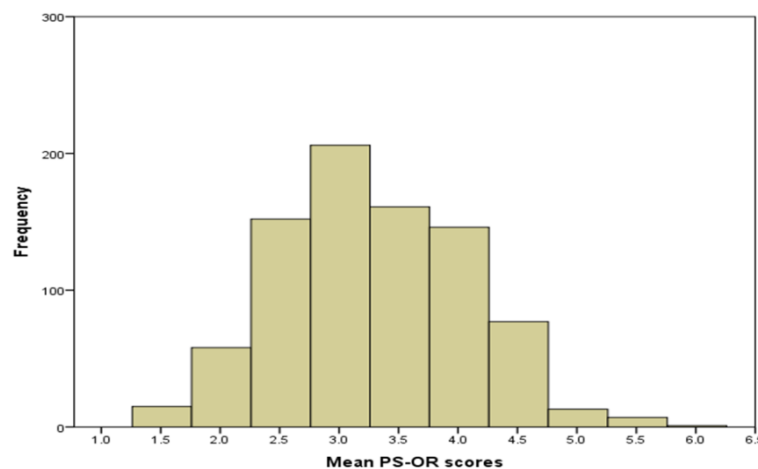


Figure 7. Distribution of PS-OR Scores

Significant difference in discipline style, mostly in PS-OR scores was noted in a number of social demographic variables. The mean and confidence interval scores are shown in the Appendix (p. 44-50).

Parents with higher educational level reported to have significantly lower scores in the discipline styles of laxness and over-reactivity. Significantly lower PS-OR scores were found in parents engaged in higher status jobs.

Mothers aged under 35 ( $M = 3.44$ , 95%CI = 3.34 to 3.53) had higher PS-OR scores than mothers aged 35 and above ( $M = 3.21$ , 95%CI = 3.15 to 3.28). Non-working

mothers also had higher PS-OR scores ( $M = 3.42$ , 95%CI = 3.33 to 3.51) than working mothers ( $M = 3.19$ , 95%CI = 3.12 to 3.26).

Participants who reported the index child having no siblings had lowest PS-OR score. Highest PS-OR scores were found in participants without carers other than parents. Those with childcare assistance from grandparents or relatives had higher scores than those had domestic helpers or hired childcare. In addition, the higher household income and the longer mother's length of residence reported, the lower were the PS-OR scores.

In sum, the general trend was that parents having lower educational level, lower occupational status, lower household income, younger maternal age, shorter maternal length of residence, no carers other than parents and more children in the family had more dysfunctional parenting style.

### 3.5.3 Parenting efficacy

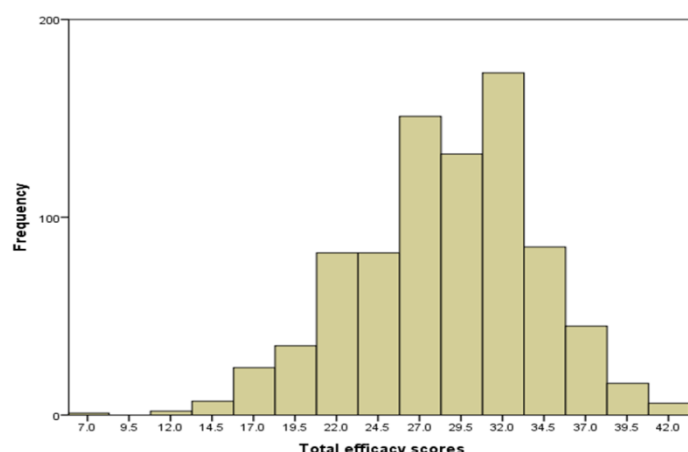


Figure 8. Distribution of Efficacy Subscale Scores

The efficacy subscale of the Parenting Sense of Competence Scale was used to measure parenting efficacy. The distribution of the scores was slightly skewed (skewness =  $-.31$ ) (Figure 8). The reliability (Crobach Alpha) was  $.84$  and the mean score was  $28.59$  (95%CI = 28.22 to 28.96). The mean score was higher than that ( $M = 27.11$ , 95%CI = 26.76 to 27.45) of the DH community survey (2004) and the range of mean scores in Johnston and Mash (1989)'s community sample which ranged from 24.97 to 25.77.

No relationship was found between parenting efficiency and any socioeconomic and demographic factors in this study.

### 3.6 Relationship between child behaviour variables, parenting variables and family support variables

#### 3.6.1 Correlation analyses

The relationship between the variables on child behaviour, parenting and family support was examined using correlation analysis. Child behaviour problems were correlated with parenting efficacy, parenting stress, dysfunctional discipline style of over-reactivity and marital relationship. The results are shown in Table 6.

Table 6

Relationship between Child Behaviour, Parenting Variables and Marital Relationship – Correlation Coefficients and 95% CI

	ECBI-I	ECBI-P	Efficacy	PSI-PD	PSI-PCDI	PS-LX	PS-OR
ECBI-P	.57** (.52 to .61)						
Efficacy	-.30** (-.36 to -.24)	-.27** (-.33 to -.20)					
PSI-PD	.36** (.30 to .42)	.40** (.34 to .46)	-.29** (-.35 to -.22)				
PSI-PCDI	.44** (.38 to .49)	.42** (.37 to .48)	-.29** (-.35 to -.22)	.53** (.47 to .58)			
PS-LX	.01 (-.06 to .08)	-.01 (-.08 to .06)	.05 (-.02 to .11)	.06 (-.01 to .13)	.11** (.05 to .18)		
PS-OR	.28** (.21 to .34)	.32** (.26 to .38)	-.23** (-.30 to -.17)	.36** (.30 to .42)	.41** (.35 to .47)	-.08* (-.14 to -.01)	
RQI	-.26** (-.32 to -.19)	-.23** (-.29 to -.16)	.23** (.16 to .29)	-.47** (-.52 to -.41)	-.34** (-.40 to -.28)	-.10** (-.17 to -.03)	-.19** (-.12 to -.25)

\* significant at .05 level; \*\* significant at .01 level

The dichotomous variables of 3 types of social support was analysed separately using independent t tests and MANOVAs to examine its relationship with child behaviour problems, parenting variables and marital relationship (Table 7-9).

Table 7

Mean and 95% CI Score of Child Behaviour Problems, Parenting Variables and Marital Relationship by Social Support (Someone to Share in Times of Stress)

	n, p-value	Available	Not available
<b>Parenting efficacy</b>	840, < .001	29.03 (28.65 to 29.42)	25.57 (24.55 to 26.58)
<b>RQI</b>	833, < .001	34.06 (33.46 to 34.66)	28.41 (26.69 to 30.13)
<b>PSI-PD</b>	794, < .001	31.81 (31.24 to 32.37)	39.12 (37.61 to 40.63)
<b>PSI-PCDI</b>		24.66 (24.22 to 25.09)	28.89 (27.56 to 30.22)
<b>ECBI-Problem</b>	827, < .001	6.07 (5.54 to 6.59)	11.61 (9.77 to 13.45)
<b>ECBI-Intensity</b>		114.38 (112.90 to 115.86)	125.48 (120.96 to 129.99)

Table 8

Mean and 95% CI Score of Child Behaviour Problems, Parenting Variables and Marital Relationship by Social Support (Emergency Childcare)

	<b>n, p-value</b>	<b>Available</b>	<b>Not available</b>
<b>RQI</b>	833, < .001	33.89 (33.30 to 34.48)	28.13 (26.05 to 30.22)
<b>PSI-PD</b>	794, < .001	32.19 (31.63 to 32.75)	37.74 (35.78 to 39.69)
<b>PSI-PCDI</b>	< .001	24.81 (24.39 to 25.23)	28.77 (26.93 to 30.60)
<b>PS-LX</b>	828, < .001	3.56 (3.51 to 3.61)	3.49 (3.37 to 3.61)
<b>PS-OR</b>	< .001	3.24 (3.18 to 3.30)	3.60 (3.40 to 3.80)
<b>ECBI-Problem</b>	827, < .001	6.31 (5.78 to 6.84)	11.41 (9.21 to 13.61)
<b>ECBI-Intensity</b>	< .001	114.71 (113.26 to 116.15)	126.67 (120.73 to 132.60)

Table 9

Mean and 95% CI Score of Child Behaviour Problems, Parenting Variables and Marital Relationship by Social Support (Assistance in Times of Financial Difficulty)

	<b>n, p-value</b>	<b>Available</b>	<b>Not available</b>
<b>Parenting efficacy</b>	840, < .001	28.86 (28.47 to 29.26)	27.11 (26.20 to 28.02)
<b>RQI</b>	833, < .001	34.11 (33.51 to 34.71)	29.22 (27.53 to 30.91)
<b>PSI-PD</b>	794, < .001	31.85 (31.28 to 32.43)	37.35 (35.87 to 38.83)
<b>PSI-PCDI</b>	< .001	24.71 (24.27 to 25.16)	27.68 (26.49 to 28.88)
<b>ECBI-Problem</b>	827, < .001	6.14 (5.61 to 6.68)	10.25 (8.58 to 11.92)
<b>ECBI-Intensity</b>	< .001	114.61 (113.11 to 116.11)	122.291 (118.07 to 126.51)

There were significant differences in parenting efficacy in terms of availability of support in times of stress,  $t(838) = 6.28, p < .001$  and financial difficulty,  $t(838) = 3.38, p < .001$ . Participants with support reported higher parenting efficacy scores than those without support. Significant differences in parenting stress were also found with all 3 types of social support. Participants with availability of support had lower PSI-PD and PSI-PCDI scores than those with unavailable support.

The RQI scores were significantly higher among those with the 3 kinds of support. Those who had support available in emergency childcare had lower dysfunctional discipline scores in PS-LX and PS-OR. The availability of the 3 kinds of support also had effect on the participants' perception of child behaviour problem. Those who had support available perceived less and lower intensity in child behaviour problems than those who reported to have no available support.

### 3.6.2 Multiple regression analyses

Multiple regression analyses were used to examine the relationship between the independent variables of availability of the 3 types of social support, maternal employment status, years of residence of mother, mother's age, household income and number of siblings of the index child and the dependent variables of behaviour problem subscale scores and parenting stress subscale scores. As household income is closely associated with educational attainment and occupational classification, only household income was used as the measure of socioeconomic status. The median domestic household income in 2011 was \$20 050 per month (Census & Statistics Department, 2012b) and \$20 000 was used as the demarcation for categorization in the present analyses.

Table 10 shows that the lack of social support in child care and in sharing in times of stress (both  $p < .01$ ) were associated with ECBI-Intensity, controlled for other variables. Similarly, the lack of social support in sharing in times of stress ( $p < .001$ ) and in child care ( $p < .05$ ) were associated with ECBI-Problem, after controlling for other factors.

Table 10

Regression results for Eyberg Child Behaviour Inventory (ECBI) intensity and problem scores

Result	B	$\beta$	95% confidence interval for B		t	r	sr <sup>2</sup>
			Lower bound	Upper bound			
<b>ECBI-Intensity: F<sub>8, 818</sub> = 5.316, p &lt; .001, adjusted R<sup>2</sup> = 0.04</b>							
Without social support (childcare)	8.49	0.11	2.93	14.05	3.00 <sup>†</sup>	0.17	0.0105
Without social support (sharing)	7.67	0.12	2.94	12.39	3.18 <sup>†</sup>	0.17	0.0119
Without social support (financial assistance)	3.41	0.06	-1.03	7.86	1.51	0.13	0.0027
Mother's year of residence	0.02	0.01	-0.13	0.16	0.24	-0.02	0.0001
Maternal employment	-1.84	-0.04	-5.20	1.51	-1.08	-0.01	0.0014
Mother's age (<35yr)	1.77	0.04	-1.42	4.96	1.09	0.04	0.0014
Siblings (2+)	0.75	0.02	-2.76	4.27	0.42	0.01	0.0002
Household income (<\$20K)	-0.21	0.00	-4.07	3.64	-0.11	0.02	0.0000
<b>ECBI-Problem (square root transformation): F<sub>8, 822</sub> = 8.312, p &lt; .001, adjusted R<sup>2</sup> = 0.07</b>							
Without social support (childcare)	0.48	0.21	0.06	0.90	2.22 <sup>‡</sup>	0.17	0.0056
Without social support (sharing)	0.78	0.18	0.42	1.14	4.27*	0.22	0.0207
Without social support (financial assistance)	0.33	0.17	0.00	0.67	1.95	0.17	0.0043
Mother's year of residence	-0.01	0.01	-0.02	0.01	-1.07	-0.11	0.0013
Maternal employment	-0.12	0.13	-0.37	0.14	-0.91	0.03	0.0009
Mother's age (<35yr)	0.23	0.12	-0.01	0.47	1.89	0.08	0.0041
Siblings (2+)	-0.07	0.14	-0.33	0.20	-0.49	0.00	0.0003
Household income (<\$20K)	0.18	0.15	-0.11	0.47	1.20	0.10	0.0016

\*  $p \leq .001$ †  $p < .01$ ‡  $p < .05$ 

Analyses were also performed for PSI-PD and PSI-PCDI as dependent variables and the same set of independent variables as those used for child behaviour problem. The results were summarized in Table 11.

Table 11

Regression results for Parenting Stress Index (PSI) parental distress and parent-child dysfunctional interaction scores

Result	B	$\beta$	95% confidence interval for B		t	r	sr <sup>2</sup>
			Lower bound	Upper bound			
<b>PSI-PD: F<sub>8, 792</sub> = 18.461, p &lt; .001, adjusted R<sup>2</sup> = 0.15</b>							
Without social support (childcare)	1.65	0.06	-0.40	3.70	1.58	0.20	0.0027
Without social support (sharing)	5.44	0.22	3.68	7.20	6.07*	0.30	0.0395
Without social support (financial assistance)	2.75	0.12	1.11	4.39	3.30*	0.25	0.0117
Mother's year of residence	-0.05	-0.08	-0.11	0.00	-1.98 <sup>‡</sup>	-0.20	0.0042
Maternal employment	-0.15	-0.01	-1.36	1.06	-0.25	0.11	0.0001
Mother's age (<35yr)	1.92	0.11	0.77	3.07	3.28*	0.14	0.0115
Siblings (2+)	0.06	0.00	-1.22	1.34	0.09	0.05	0.0000
Household income (<\$20K)	1.89	0.10	0.50	3.28	2.66 <sup>‡</sup>	0.20	0.0076
<b>PSI-PCDI: F<sub>8, 820</sub> = 14.236, p &lt; .001, adjusted R<sup>2</sup> = 0.11</b>							
Without social support (childcare)	1.82	0.08	0.23	3.41	2.25 <sup>‡</sup>	0.18	0.0055
Without social support (sharing)	2.92	0.16	1.59	4.24	4.31*	0.23	0.0201
Without social support (financial assistance)	1.01	0.06	-0.24	2.25	1.58	0.18	0.0027
Mother's year of residence	-0.02	-0.03	-0.06	0.02	-0.88	-0.18	0.0008
Maternal employment	-0.40	-0.03	-1.34	0.54	-0.84	0.11	0.0008
Mother's age (<35yr)	1.11	0.08	0.21	2.01	2.43 <sup>‡</sup>	0.11	0.0064
Siblings (2+)	1.49	0.10	0.51	2.48	2.98 <sup>‡</sup>	0.13	0.0096
Household income (<\$20K)	2.26	0.16	1.17	3.35	4.08*	0.23	0.0180

\*  $p \leq .001$ <sup>†</sup>  $p < .01$ <sup>‡</sup>  $p < .05$ 

Lack of social support in sharing in times of stress and financial assistance, mother's younger age (all have  $p < .001$ ) and shorter years of residence ( $p < .05$ ), as well as lower household income ( $p < .01$ ) were associated with higher PSI-PD, after controlling for social support (child care), maternal employment status and number of siblings.

Lack of social support in sharing in times of stress ( $p < .001$ ) and in child care ( $p < .05$ ), lower household income ( $p < .001$ ), more number of siblings ( $p < .01$ ) and mother's younger age ( $p < .05$ ) were associated with higher PSI-PCDI, controlled for social support (financial assistance), mother's years of residence and employment status.

### **3.7 Parenting education experience**

About 75% ( $n = 631$ ) of participants reported that they often or sometimes used MCHC's parenting education resources including workshops or educational materials. About 25% had never used the resources. The association between access to MCHC's parenting education resources and socioeconomic and demographic characteristics was examined. Mothers who used the MCHC's parenting education resources were more likely to be of higher educational level. Among the mothers of tertiary education and above, 18.5% had never accessed the resources. In contrast, around 30% of the mothers of secondary education level and below had never accessed the parenting education resources. No differences were found with other socioeconomic and demographic variables.

Participants were asked to what extent they had used each of MCHC's parenting education resources. Out of 844 participants, 68.2% had read pamphlets, 32.8% had accessed the website information, 21.8% had viewed DVDs, 16.3% had attended the universal parenting workshops, and 7.8% had attended the intensive Triple P workshops. These could be under-estimation as there were about 1 to 4% of missing data for each item. Those who had not used these resources claimed that the main reasons were not knowing about them or having no time.

Among those who had used the parenting education resources on the FHS website ( $n = 277$ ), Table 12 showed that more than half of them used the website to search for information about MCHC services (72.2%) and view educational information (59.5%). A considerable amount of participants had viewed the videos through Youtube Channel (31.4%).

Table 12

Use of Educational Resources on FHS Website (n = 277)

	<b>Never</b>	<b>Sometimes</b>	<b>Often</b>	<b>Missing</b>
<b>Viewing information/pamphlets</b>	110 (39.7%)	158 (57%)	7 (2.5%)	2 (0.7%)
<b>Listening to Recorded Hotline information</b>	220 (79.4%)	54 (19.5%)	-	3 (1.1%)
<b>Viewing Videos(Youtube Channel)</b>	189 (68.2%)	78 (28.2%)	9 (3.2%)	1 (0.4%)
<b>Parent-Child e-Link e-Newsletter</b>	202 (72.9%)	72 (26%)	2 (0.7%)	1 (0.4%)
<b>Searching for MCHC services</b>	76 (27.4%)	186 (67.1%)	14 (5.1%)	1 (0.4%)

When asked about the views on the parenting issues provided in the educational resources, around 65 to 78 % commented that the resources were useful/acceptable. About 50% of participants felt child development, children's diet and nutrition, and physical care were useful. About 35% felt the same for the issue of discipline and parent-child communication (Table 13).

Table 13

Usefulness of Parenting Issues in Educational Resources (n = 844)

	<b>Don't know</b>	<b>Not useful</b>	<b>Acceptable</b>	<b>Useful</b>	<b>Missing</b>
<b>Discipline/parent-child communication</b>	220 (26.1%)	65 (7.7%)	258 (30.6%)	301 (34.8%)	7 (0.8%)
<b>Diet &amp; nutrition</b>	145 (17.2%)	45 (5.4%)	219 (25.9%)	435 (51%)	4 (0.5%)
<b>Child development</b>	134 (15.9%)	45 (5.3%)	222 (26.3%)	443 (51.9%)	5 (0.6%)
<b>Physical care</b>	151 (17.9%)	54 (6.4%)	210 (24.9%)	429 (50.2%)	5 (0.6%)

Participants were also asked about their preferred sources of parenting education information or services by ranking the top three preferences. A weighted score was given to each choice of source. The results are summarized in Table 14. In the order of choices, the most preferred source of parenting education resources were from school/parent-teacher association, MCHC and printed media. Comparing with the preferences on sources of parenting education found in the DH community survey (2004) 10 years ago, more people ranked MCHC higher in their choice.

They were also asked of their preferred format for parenting education information (Table 15). The most popular format was printed media, followed by internet, advice from friends or relatives, and TV/radio. The findings were somewhat different from those of the DH community survey (2004) in which the top 4 rankings were pamphlets, printed media, talks and internet.

Analyses were made to examine the child behaviour, parenting and marital relationship profiles of the users and non-users of the MCHC parenting education resources. There were significantly more non-users having parenting stress either in terms of high problematic parent-child interaction (only PSI-PCDI above local cut off score ) or high problematic parent-child interaction together with parenting distress (both PSI-PCDI and PD above local cut off score) (Table 16).

Table 14

## Preferred Source of Parenting Education Information/Service

Source of parenting education	1st	2nd	3rd	n	Total scores (by weights)
MCHCs	274	102	110	504	1136
Other government departments	11	43	33	105	152
Non-government organizations	24	44	72	155	232
Hospital Authority	3	43	19	82	114
School/Parent –teacher association	240	198	133	580	1249
Commercial sector	9	19	14	62	79
Private practitioners/professionals	40	86	86	225	378
TV/radio	54	125	152	345	564
Books/periodicals/magazines	183	156	166	515	1027

Table 15

## Preferred Format of Parenting Education Information (could indicate more than one)

Format of information	n
Talk/seminar	271
Internet	405
TV/radio	311
Medical/professional advice	254
Workshop (practicum/interactive)	165
Email	139
Book/article/magazine	484
Advice from Friends/relatives	340
CD/DVD	107
Mobile apps	127
Pamphlet/booklet	288
Hotline	97

Table 16

## The PCDI above-cut off scores of users and non-users of MCHC resources

	Never used (n = 213)	Used (n = 631)	Test statistics (df, n) p-value
PCDI $\geq 31$	48 (22.7%)	95 (15.4%)	$\chi^2 = 5.90$ (1, 827) $p = .015$
PD ( $\geq 37$ ) & PCDI ( $\geq 31$ )	33 (16.5%)	59 (9.9%)	$\chi^2 = 6.30$ (1, 794) $p = .012$

## **Chapter 4**

### **Discussion**

#### **4.1 Sample characteristics**

The present sample consisted of slightly more parents with high income, high education, high occupation status and support of domestic helpers and grandparents than the corresponding data from the 2011 census on households with at least one child aged 3 to 4 years.

The present study also took reference to the DH community survey (2004) as no other similar survey was available despite that the two samples differed in sociodemographic characteristics.

#### **4.2 Child behaviour problems, parenting variables and family support variables**

The present study found similar inter-relationships among child behaviour variables, parenting variables and family support variables as in the DH community survey (2004) conducted 10 years ago. The social support variables had positive influence on child behaviour problem, parenting stress and marital relationship.

The lack of social support in child care and in sharing in times of stress was found to have an effect on the participants' perception of child behaviour problem. Those who had support available perceived less and lower intensity in child behaviour problems than those who reported to have no available support. Lacking someone to share in times of stress, lower family income, as well as mother of younger age were found to be associated with parenting stress in general. In addition to the factors mentioned above, lacking social support in financial assistance and shorter length of residence of mother were associated to parenting distress (PSI-PD); and lacking support in emergency child care and more siblings were associated with the problematic interaction between parent and child (PSI-PCDI), which contributes to parenting stress.

The above mentioned variables had associations with socioeconomic data. Parents' educational level, occupational status and family income together with mother's age were related to parenting variables of parenting stress and dysfunctional discipline style; while behaviour problem was negatively associated with mother's educational level, length of residence and father's occupational status. This is consistent with the literature and recent research findings that family income and parent's education are associated with parenting quality (Sawhill et al., 2013; The Boys' and Girls' Association, 2008; Walker, Greenwood, Hart & Carter, 1994) as well as better behaviour outcomes of children (Jones, Gutman & Platt, 2013). Although the cluster of socioeconomic factors are often inter-related, as suggested by Duncan &

Magnuson (2003), parental education level could be a significant socioeconomic factor among the others as higher level of parental education may contribute to parents' resourcefulness in exercising parenting skills for achieving their parenting goals.

In the present study, only household income was used as the socioeconomic factor in multiple regression analyses. The results were similar to the findings of Leung, Leung, Chan, Tso & Ip (2005) in which the lack of social support, in particular lacking someone to share in times of stress, were associated with perceived child behaviour problem and parenting stress, after controlling for other forms of social support and demographic variables entered. The present analysis also found household income was associated with parenting stress but not with child behaviour problem. There were however more demographic factors including younger age of mother, shorter duration of residence of mother found to be associated with parenting distress and dysfunctional parent-child interaction when compared with Leung et al. (2005). Having no one to offer emergency child care and having 3 or more children in the family could be associated with conflicts between the parent and the child.

The socioeconomic factors were also related to availability of social support and marital relationship. It is interesting to see that more family factors including marital status, mother's education, father's occupation and working status, as well as family status and income were associated with marital satisfaction in the present study when compared to the 2004 study. Findings on the relationship between marital satisfaction and socioeconomic variables were inconsistent and varied among different ethnic groups (Kamo, 1993; Bryant, Taylor, Lincoln, Chatters & Jackson, 2008; Donohue & Ryder, 1982). Nonetheless, socioeconomic variables often act as moderator between marital satisfaction and variables like parent's well-being and parenthood (Choi & Marks, 2013; Twenge, Campbell & Foster, 2003).

Studies showed that change in demographic trends and socio-ecological context in society would affect the mode and involvement of parents in child care (Cabrera, Tamis-LeMonda, Bradley, Hofferth & Lamb, 2000) and be associated with changes in parenting views and practice (Xu, Farver, Zhang, Zeng, Yu & Cai, 2005; Halpenny, Nixon & Watson, 2010). In comparison with the similar study in 2004, although no significant differences were found in perceived child behaviour problem, on the whole, the present sample had significantly lower scores in parenting stress and dysfunctional discipline style as well as higher parenting efficacy scores. As discussed above, higher socioeconomic status was reported to be related to better parenting quality while lower socioeconomic status was related to higher parenting stress (Leung et al., 2005). Whether the higher household income in the present sample could

contribute to the comparatively lower parenting stress would need further exploration.

Despite the change of family structure with decrease in participants living with extended families, there was a rise in having grandparents as caregivers as indicated in the present study. According to a large scale family survey done in Hong Kong (Policy 21, 2014), comparing to the past two years, more respondents valued the contribution of grandparents in the family. They also perceived their family members as supportive for their emotional and tangible problems. Grandparents were also found to be the persons who took up the parenting roles in physical and emotional care in the local families when the parents were not available (The Boys' and Girls' Association, 2008). The childcare practice of grandparents in the present study may imply that parents were taking their child to the grandparents or grandparents paying visit to babysit the child.

Apart from increase in caring by grandparents, the use of domestic helpers for childcare also significantly increased when compared to the 2004 survey results. The caregiving arrangement could reflect the living situations of young families in Hong Kong nowadays. While more fathers and mothers were working with better socioeconomic status in the present sample, domestic helpers could be more affordable when compared to the 2004 survey. Another local survey (The Boys' and Girls' Association, 2008) reported that families with higher income tended to hire a domestic helper. Although these parents had longer working hours, they spent significantly less time in household chores and significantly more time with children in their study and emotional care. This may reflect the valuable function of domestic helpers. While current study did not look into the direct relationship among type of caregivers, child behaviour and parenting variables, this could be an issue for future study.

#### **4.3 Parenting education resources**

Present findings showed similar percentage on the use of the MCHC parenting education resources between mothers and fathers, suggesting that fathers sought for parenting knowledge and skills as much as mothers. This is in contrast to the traditional fathering role which focuses more on being a breadwinner and leaving the childcare to the mother. In the DH community survey (2004), fathers who never accessed any parenting education resources outnumbered mothers. Indeed, there have been more and more researches on fathering. A local study based on a convenient sample of 2 029 fathers from nurseries showed that fathering self-efficacy and marital relationship were significant predictors of father involvement (Kwok & Li, 2015; Kwok, Ling, Leung & Li, 2013). Father involvement was also found to be

associated with positive maternal health outcomes (Yargawa & Leonardi-Bee, 2015) and child developmental outcomes (Sarkadi, Kristiansson, Oberklaid & Bremberg, 2008).

The introduction of the territory-wide MCHC Parenting Programme aims to equip parents with parenting knowledge and skills and prevent child behaviour problem with the intensive Triple P workshops targeted at those having difficulty in managing their children's behaviour. On examining the utilisation of MCHC parenting programme in the present survey, those who had used the programme resources tended to have less problematic interaction with their children as reflected in having lower percentage above the PSI-PCDI cut off score. There was however no difference between the users and non-users in their perception of child behaviour problem. Around 8% of parents reported that they had joined the intensive Triple P workshops which approximated that of the range of significant behaviour problems reported in local and overseas studies.

Although no direct comparison could be made with the DH community survey (2004) due to the participants' parenting education experiences then did not cover MCHC Parenting Programme, the present study found that schools/parent-teacher associations and printed publications remained to be popular in the two studies while MCHC was ranked to be the higher preferred source of parenting education in the present study. The MCHC Parenting Programme appears to have served its aim.

#### **4.4 Limitations**

It is worth noting that the participants had significantly different characteristics than the refusal group in the present study. There were far more working mothers than non-working mothers and the fathers were younger among the participants. This might have boosted up the proportion of working mothers in the respondents. Together with the discrepancy with the census data in sample characteristics, response bias might be possible and the interpretation of results would need to take these into consideration. Also, in discussing the results, we tried to take reference to the DH community survey (2004). One should bear in mind the differences of demographic characteristics of the two samples when interpreting the results.

The questionnaires used to measure dysfunctional discipline style and marital relationship were developed in western countries and were not locally validated. They therefore should be interpreted with caution.

The community survey was cross-sectional targeted only at the parents of the four-year olds. For this age group, they would have completed all immunisation schedules by 18 months of age and thus would cease to have MCHC visits. The recruitment was largely through mailing which made the response rate not as

satisfactory. Furthermore, asking the respondents about their participation in MCHC parenting education programme required them to recall their past experience with MCHC. Inaccurate recall was thus possible.

#### **4.5 Implications for service provision**

The present survey indicates that there are 9.6% of children who may have behaviour problems that are clinically significant. The parents of these children are likely to have higher stress and are in need of parental support. MCHCs have adopted and implemented the Positive Parenting Programme (Triple P) since 2002. Results from overseas and local studies have found that Triple P is a robust programme in decreasing behaviour problems, ineffective discipline styles, increasing parenting competence and decreasing parenting stress (Sanders, 1999; Leung et al., 2003; Leung et al., 2006; MacMillan, Wathen, Barlow, Fergusson, Leventhal & Taussig, 2009; Sandler, Schoenfelder, Wolchik & MacKinnon, 2011). In the present survey, the number reported to have attended Triple P was close to although not yet reach the estimated proportion of around 10%. This suggests that the Triple P was widely received but some needy parents have not accessed the service. How to reach the needy parents remain to be the common issue to be further explored.

It is encouraging to see more fathers and younger parents use the parenting education resources compared to the findings 10 years ago (Department of Health, 2004). The needs of fathers in parenting would be an important focus in parenting programme planning. With the rise in having grandparents as a valuable source of childcare support, the MCHC parenting programme has sought to involve grandparents as the recipients of updated parenting knowledge and skills. Tips on inter-generational communication have been produced aiming for consistency in parenting practice between the grandparents and the parents.

On the other hand, promotion strategies on how to reach more parents, in particular those of lower educational level, need to be considered. Results show that printed media are still the most popular format of education information while internet is the second most preferred. Internet is becoming a popular information media especially for the younger population. Focus on both printed and electronic educational information will be the trend of parenting education service. Recently, the MCHC Parenting Programme has launched various electronic media such as the Parenting Made Easy web-based self-learning parenting course, and QR codes have been provided to parents for easy access to parenting education information.

The survey also points to preschools being the most popular source of parenting education information. Talks and workshops held in kindergartens and nurseries will

be convenient and fit the needs of parents of children aged 2 to 5. In addition, public talks will be another means to reach these parents.

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## Appendix Statistical details

### Child behavior profile

MANOVA results on ECBI and mother's education level

	<i>F</i>	<i>df</i>	Significance
Multivariate test	3.72	10, 1642	< .001
Univariate tests			
ECBI-intensity	1.70	5, 821	ns
ECBI-problem	5.71	5, 821	< .001

Mean ECBI-problem and 95% CI by mother's education level ( $n = 827$ ,  $p < .001$ )

	<b>ECBI-problem scores</b>
Primary education or below	15.81 (10.22 to 21.41)
Lower secondary	7.39 (5.40 to 9.37)
Upper secondary	7.03 (6.15 to 7.91)
Matriculation	7.33 (5.22 to 9.45)
Tertiary (non-degree course)	6.73 (5.32 to 8.14)
Tertiary (degree course)	5.73 (4.95 to 6.51)

MANOVA results on ECBI and father's occupation

	<i>F</i>	<i>df</i>	Significance
Multivariate test	3.97	4, 1640	.003
Univariate tests			
ECBI-intensity	2.69	2, 820	ns
ECBI-problem	8.02	2, 820	< .001

Mean ECBI-problem and 95% CI by father's occupation level ( $n = 823$ ,  $p < .001$ )

	<b>ECBI-problem scores</b>
Managers and Administrators / Prof and Ass. prof	5.76 (5.10 to 6.42)
Clerks / Service workers and shop sales / Elementary occ and workers / occ not classifiable	7.83 (6.99 to 8.67)
Housewife / retired / unemployed	9.19 (3.82 to 14.55)

Correlation coefficients and 95% CI on ECBI-problem and mother's years of residence

$r = -0.13$ , 95%CI = -0.20 to -0.06,  $p < .001$ ,  $n = 825$

### Family support profile – social support

#### Social support (childcare in emergency) and socioeconomic factors

	$\chi^2$	<i>df</i>	Significance
Childcare assistance	41.27	2	< .001
Mother's education level	25.07	2	< .001
Mother's occupation	19.26	2	< .001
Monthly household income	24.20	3	< .001

#### Social support (someone to share) and socioeconomic factors

	$\chi^2$	<i>df</i>	Significance
Mother's education level	12.64	1	< .001

#### Social support (financial assistance) and socioeconomic factors

	$\chi^2$	<i>df</i>	Significance
No. of sibling(s)	15.30	2	< .001
Childcare assistance	20.76	2	< .001
Mother's education level	22.54	2	< .001
Monthly household income	30.69	3	< .001

### Family support profile – marital relationship

ANOVA results on RQI and father's occupation (n = 830)

<i>F</i>	<i>df</i>	Significance
4.78	5, 825	< .001

Post hoc test (Scheffe) for RQI and father's occupation

	Managerial/ administrative	Professional	Clerical	Sales /service	Skilled/manual /other	Non- working
Managerial/ administrative						✓
Professional						✓
Clerical						✓
Sales/service						
Skilled/manual /other						✓
Non-working						

ANOVA results on RQI and father's education level (n = 831)

<i>F</i>	<i>df</i>	Significance
7.33	2, 829	< .001

Post hoc test (Scheffe) for RQI and father's education level

	Lower secondary or below	Upper secondary & Matriculation	Tertiary (non-degree & degree)
Lower secondary or below		✓	✓
Upper secondary & Matriculation			
Tertiary (non-degree & degree)			

## ANOVA results on RQI and mother's education level (n = 832)

<i>F</i>	<i>df</i>	Significance
6.68	5, 827	< .001

## Post hoc test (Scheffe) for RQI and mother's education level

	Primary or no education	Lower secondary	Upper secondary	Matriculation	Tertiary (non-degree)	Tertiary (degree)
Primary or no education						✓
Lower secondary						✓
Upper secondary						✓
Matriculation						
Tertiary (non-degree)						
Tertiary (degree)						

## Correlation coefficients and 95% CI on RQI and mother's years of residence

$r = 0.12$  , 95%CI = 0.05 to 0.19,  $p < .001$ ,  $n = 827$

## ANOVA results on RQI and monthly household income (n = 831)

<i>F</i>	<i>df</i>	Significance
10.93	4, 826	< .001

## Post hoc test (Scheffe) for RQI and monthly household income

	<\$10K	\$10K < \$20K	\$20K < \$30K	\$30K < \$40K	>\$40K
<\$10K			✓	✓	✓
\$10K < \$20K					✓
\$20K < \$30K					
\$30K < \$40K					
>\$40K					

### Parenting profile – parenting stress

MANOVA results on PSI and monthly household income

	<i>F</i>	<i>df</i>	Significance
Multivariate test	6.93	8, 1574	< .001
Univariate tests			
PSI-PD	9.32	4, 787	< .001
PSI-PCDI	12.02	4, 787	< .001

Post hoc test (Scheffe) for PSI-PD ( $\oplus$ ), PSI-PCDI ( $\ominus$ ) and monthly household income

	<\$10K	\$10K < \$20K	\$20K < \$30K	\$30K < \$40K	>\$40K
<\$10K					$\oplus \ominus$
\$10K < \$20K			$\ominus$	$\oplus \ominus$	$\oplus \ominus$
\$20K < \$30K					
\$30K < \$40K					
>\$40K					

MANOVA results on PSI and mother's age group

	<i>F</i>	<i>df</i>	Significance
Multivariate test	9.24	2, 791	< .001
Univariate tests			
PSI-PD	16.17	1, 792	< .001
PSI-PCDI	11.51	1, 792	< .001

MANOVA results on PSI and no. of sibling(s)

	<i>F</i>	<i>df</i>	Significance
Multivariate test	7.83	2, 791	< .001
Univariate tests			
PSI-PD	1.77	1, 792	ns
PSI-PCDI	15.00	1, 792	< .001

MANOVA results on PSI and mother's education level

	<i>F</i>	<i>df</i>	Significance
Multivariate test	6.90	10, 1576	< .001
Univariate tests			
PSI-PD	8.17	5, 788	< .001
PSI-PCDI	11.7	5, 788	< .001

Post hoc test (Scheffe) for PSI-PD ( $\oplus$ ), PSI-PCDI ( $\ominus$ ) and mother's education level

	Primary or no education	Lower secondary	Upper secondary	Matriculation	Tertiary (non-degree)	Tertiary (degree)
Primary or no education			$\ominus$	$\ominus$	$\ominus$	$\oplus \ominus$
Lower secondary					$\ominus$	$\oplus \ominus$
Upper secondary						$\oplus \ominus$
Matriculation						
Tertiary (non-degree)						
Tertiary (degree)						

MANOVA results on PSI and father's education level

	<i>F</i>	<i>df</i>	Significance
Multivariate test	2.89	10, 1572	.001
Univariate tests			
PSI-PD	4.32	5, 786	< .001
PSI-PCDI	4.40	5, 786	< .001

Post hoc test (Scheffe) for PSI-PD ( $\oplus$ ), PSI-PCDI ( $\ominus$ ) and father's education level

	Primary or no education	Lower secondary	Upper secondary	Matriculation	Tertiary (non-degree)	Tertiary (degree)
Primary or no education						
Lower secondary						$\oplus \ominus$
Upper secondary						
Matriculation						
Tertiary (non-degree)						
Tertiary (degree)						

#### MANOVA results on PSI and mother's occupation

	<i>F</i>	<i>df</i>	Significance
Multivariate test	3.85	10, 1576	< .001
Univariate tests			
PSI-PD	4.58	5, 788	< .001
PSI-PCDI	6.67	5, 788	< .001

#### Post hoc test (Scheffe) for PSI-PD ( $\oplus$ ), PSI-PCDI ( $\ominus$ ) and mother's occupation

	Managerial/ administrative	Professional	Clerical	Sales /service	Skilled/manual /other	Non- working
Managerial/ administrative				$\ominus$		$\oplus \ominus$
Professional				$\ominus$		$\oplus$
Clerical						
Sales/service						
Skilled/manual /other						
Non-working						

#### MANOVA results on PSI and father's occupation

	<i>F</i>	<i>df</i>	Significance
Multivariate test	4.43	10, 1570	< .001
Univariate tests			
PSI-PD	5.74	5, 785	< .001
PSI-PCDI	7.47	5, 785	< .001

#### Post hoc test (Scheffe) for PSI-PD ( $\oplus$ ), PSI-PCDI ( $\ominus$ ) and father's occupation

	Managerial/ administrative	Professional	Clerical	Sales /service	Skilled/manual /other	Non- working
Managerial/ administrative					$\oplus \ominus$	$\ominus$
Professional					$\oplus \ominus$	$\ominus$
Clerical						
Sales/service						
Skilled/manual /other						
Non-working						

### Parenting profile – dysfunctional discipline style

MANOVA results on PS and mother's education level

	<i>F</i>	<i>df</i>	Significance
Multivariate test	8.47	10, 1646	< .001
Univariate tests			
PS-LX	7.66	5, 823	< .001
PS-OR	8.31	5, 823	< .001

Mean PS scores and 95% CI by mother's education level (n = 829,  $p < .001$ )

	PS-LX Scores	PS-OR Scores
Primary education or below	3.71 (3.38 to 4.03)	4.02 (3.57 to 4.45)
Lower secondary	3.79 (3.66 to 3.91)	3.46 (3.29 to 3.62)
Upper secondary	3.67 (3.60 to 3.74)	3.33 (3.25 to 3.42)
Matriculation	3.44 (3.20 to 3.69)	3.38 (3.07 to 3.68)
Tertiary (non-degree course)	3.41 (3.27 to 3.55)	3.35 (3.19 to 3.50)
Tertiary (degree course)	3.41 (3.33 to 3.49)	3.07 (2.98 to 3.16)

Post hoc test (Scheffe) for PS-LX ( $\oplus$ ), PS-OR ( $\ominus$ ) and mother's education level

	Primary or no education	Lower secondary	Upper secondary	Matriculation	Tertiary (non-degree)	Tertiary (degree)
Primary or no education			$\ominus$			$\ominus$
Lower secondary					$\oplus$	$\oplus \ominus$
Upper secondary					$\oplus$	$\oplus \ominus$
Matriculation						
Tertiary (non-degree)						
Tertiary (degree)						

MANOVA results on PS and father's education level

	<i>F</i>	<i>df</i>	Significance
Multivariate test	5.91	10, 1642	< .001
Univariate tests			
PS-LX	4.55	5, 821	< .001
PS-OR	6.58	5, 821	< .001

Mean PS scores and 95% CI by father's education level (n = 827,  $p < .001$ )

	<b>PS-LX Scores</b>	<b>PS-OR Scores</b>
Primary education or below	3.51 (3.08 to 3.93)	3.76 (3.36 to 4.16)
Lower secondary	3.69 (3.57 to 3.82)	3.52 (3.39 to 3.65)
Upper secondary	3.66 (3.58 to 3.74)	3.28 (3.19 to 3.37)
Matriculation	3.47 (3.21 to 3.73)	3.29 (3.01 to 3.57)
Tertiary (non-degree course)	3.53 (3.39 to 3.67)	3.31 (3.16 to 3.46)
Tertiary (degree course)	3.42 (3.34 to 3.50)	3.11 (3.02 to 3.20)

Post hoc test (Scheffe) for PS-LX ( $\oplus$ ), PS-OR ( $\oplus$ ) and father's education level

	Primary or no education	Lower secondary	Upper secondary	Matriculation	Tertiary (non- degree)	Tertiary (degree)
Primary or no education						
Lower secondary						$\oplus \oplus$
Upper secondary						$\oplus$
Matriculation						
Tertiary (non- degree)						
Tertiary (degree)						

# MANOVA results on PS and mother's occupation

	<i>F</i>	<i>df</i>	Significance
Multivariate test	3.89	10, 1646	< .001
Univariate tests			
PS-LX	2.72	5, 823	ns
PS-OR	4.97	5, 823	< .001

Mean PS scores and 95% CI by mother's occupation (n = 829,  $p < .001$ )

	PS-LX Scores	PS-OR Scores
Managerial/ administrative	3.50 (3.35 to 3.65)	3.07 (2.90 to 3.24)
Professional	3.46 (3.35 to 3.58)	3.08 (2.95 to 3.22)
Clerical	3.66 (3.57 to 3.74)	3.28 (3.18 to 3.39)
Sales/service	3.72 (3.59 to 3.86)	3.24 (3.09 to 3.40)
Skilled/manual/other	3.49 (2.92 to 4.05)	3.51 (2.96 to 4.07)
Non-working	3.51 (3.43 to 3.59)	3.41 (3.32 to 3.50)

# Post hoc test (Scheffe) for PS-LX ( $\oplus$ ), PS-OR ( $\ominus$ ) and mother's occupation

	Managerial/ administrative	Professional	Clerical	Sales /service	Skilled/manual /other	Non- working
Managerial/ administrative						$\ominus$
Professional						$\ominus$
Clerical						
Sales/service						
Skilled/manual /other						
Non-working						

# MANOVA results on PS and father's occupation

	<i>F</i>	<i>df</i>	Significance
Multivariate test	4.95	10, 1638	< .001
Univariate tests			
PS-LX	3.46	5, 819	ns
PS-OR	5.76	5, 819	< .001

## Mean PS scores and 95% CI by father's occupation (n = 825, $p < .001$ )

	<b>PS-LX Scores</b>	<b>PS-OR Scores</b>
Managerial/ administrative	3.53 (3.44 to 3.62)	3.17 (3.06 to 3.27)
Professional	3.42 (3.32 to 3.50)	3.12 (3.01 to 3.24)
Clerical	3.54 (3.40 to 3.68)	3.28 (3.13 to 3.43)
Sales/service	3.67 (3.51 to 3.83)	3.42 (3.24 to 3.61)
Skilled/manual/other	3.65 (3.56 to 3.74)	3.44 (3.34 to 3.54)
Non-working	3.85 (3.55 to 4.16)	3.70 (3.24 to 4.16)

## Post hoc test (Scheffe) for PS-LX ( $\oplus$ ), PS-OR ( $\ominus$ ) and father's occupation

	Managerial/ administrative	Professional	Clerical	Sales /service	Skilled/manual /other	Non- working
Managerial/ administrative					$\ominus$	
Professional					$\oplus \ominus$	
Clerical						
Sales/service						
Skilled/manual /other						
Non-working						

MANOVA results on PS and no. of sibling(s)

	<i>F</i>	<i>df</i>	Significance
Multivariate test	3.33	6, 1650	ns
Univariate tests			
PS-LX	0.48	3, 825	ns
PS-OR	6.25	3, 825	< .001

Mean PS-OR scores and 95% CI by number of siblings (n = 829,  $p < .001$ )

	<b>PS-OR Scores</b>
0	3.13 (3.03 to 3.23)
1	3.29 (3.21 to 3.36)
2	3.48 (3.35 to 3.61)
>3	3.21 (2.96 to 3.46)

Post hoc test (Scheffe) for PS-LX ( $\oplus$ ), PS-OR ( $\oplus$ ) and no. of sibling(s)

	0	1	2	$\geq 3$
0			$\oplus$	
1				
2				
$\geq 3$				

MANOVA results on PS and childcare assistance

	<i>F</i>	<i>df</i>	Significance
Multivariate test	3.33	6, 1650	ns
Univariate tests			
PS-LX	.81	3, 825	ns
PS-OR	6.00	3, 825	< .001

Mean PS-OR scores and 95% CI by type of childcare assistance (n = 829,  $p < .001$ )

PS-OR Scores	
Grandparents	3.27 (3.19 to 3.35)
Other relatives	3.35 (3.04 to 3.66)
Domestic helper/ hired childcare / others	3.16 (3.08 to 3.25)
No assistance	3.48 (3.35 to 3.61)

Post hoc test (Scheffe) for PS-LX ( $\oplus$ ), PS-OR ( $\oplus$ ) and childcare assistance

	Grandparents	Other relatives	Domestic helper/ hired childcare / others	No assistance
Grandparents				
Other relatives				
Domestic helper/ hired childcare / others				$\oplus$
No assistance				

#### MANOVA results on PS and monthly household income

	<i>F</i>	<i>df</i>	Significance
Multivariate test	5.11	8, 1644	< .001
Univariate tests			
PSI-PD	1.63	4, 822	ns
PSI-PCDI	8.13	4, 822	< .001

#### Mean PS-OR scores and 95% CI by household income (n = 827, $p < .001$ )

	<b>PS-OR Scores</b>
<\$10K	3.67 (3.43 to 3.90)
\$10K < \$20K	3.46 (3.34 to 3.57)
\$20K < \$30K	3.25 (3.12 to 3.38)
\$30K < \$40K	3.29 (3.16 to 3.41)
>\$40K	3.14 (3.05 to 3.22)

#### Post hoc test (Scheffe) for PS-LX ( $\oplus$ ), PS-OR ( $\ominus$ ) and monthly household income

	<\$10K	\$10K < \$20K	\$20K < \$30K	\$30K < \$40K	>\$40K
<\$10K			$\ominus$		$\ominus$
\$10K < \$20K					$\ominus$
\$20K < \$30K					
\$30K < \$40K					
>\$40K					

#### Correlation coefficients and 95% CI on PS-OR and mother's years of residence

$r = -0.13$  , 95%CI = -0.19 to -0.06,  $p < .001$ , n = 831

## Relationship between child behaviour problems, parenting variables and family support variables

T test results on RQI, parenting efficacy and social support

Type of social support	<i>t</i>	<i>df</i>	Significance
Childcare in emergency and RQI	5.70	831	< .001
Someone to share and RQI	6.43	831	< .001
Financial assistance and RQI	6.05	831	< .001
Someone to share and parenting efficacy	6.28	838	< .001
Financial assistance and parenting efficacy	3.38	838	< .001

MANOVA results on PSI and social support (someone to share)

	<i>F</i>	<i>df</i>	Significance
Multivariate test	41.18	2, 791	< .001
Univariate tests			
PSI-PD	76.17	1, 792	< .001
PSI-PCDI	42.14	1, 792	< .001

MANOVA results on PSI and social support (childcare in emergency)

	<i>F</i>	<i>df</i>	Significance
Multivariate test	19.50	2, 791	< .001
Univariate tests			
PSI-PD	31.49	1, 792	< .001
PSI-PCDI	27.26	1, 792	< .001

MANOVA results on PSI and social support (financial assistance)

	<i>F</i>	<i>df</i>	Significance
Multivariate test	26.59	2, 791	< .001
Univariate tests			
PSI-PD	50.79	1, 792	< .001
PSI-PCDI	24.62	1, 792	< .001

MANOVA results on PS and social support (childcare in emergency)

	<i>F</i>	<i>df</i>	Significance
Multivariate test	7.26	2, 825	< .001
Univariate tests			
PS-LX	0.78	1, 826	ns
PS-OR	14.16	1, 826	< .001

MANOVA results on ECBI and social support (someone to share)

	<i>F</i>	<i>df</i>	Significance
Multivariate test	25.78	2, 824	< .001
Univariate tests			
ECBI-problem	49.36	1, 825	< .001
ECBI-intensity	26.27	1, 825	< .001

MANOVA results on ECBI and social support (childcare in emergency)

	<i>F</i>	<i>df</i>	Significance
Multivariate test	17.29	2, 824	< .001
Univariate tests			
ECBI-problem	30.49	1, 825	< .001
ECBI-intensity	22.62	1, 825	< .001

MANOVA results on ECBI and social support (financial assistance)

	<i>F</i>	<i>df</i>	Significance
Multivariate test	15.94	2, 824	< .001
Univariate tests			
ECBI-problem	31.21	1, 825	< .001
ECBI-intensity	14.56	1, 825	< .001

Use of MCHC's parenting education resources and socioeconomic factors

	$\chi^2$	<i>df</i>	Significance
Mother's education level	21.49	4	< .001