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Author(s)	Fabrizio, CS; Lam, TH; Hirschmann, MR; Pang, I; Yu, NX; Wang, X; Stewart, SM
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Parental Emotional Management Benefits Family Relationships:

A Randomized Controlled Trial in Hong Kong, China

Cecilia S. Fabrizio^a, Tai Hing Lam^{a,b}, Malia R. Hirschmann^a, Irene Pang^c, Nancy Xiaonan Yu^{a,d},
Xin Wang^a, Sunita M. Stewart^{a,b}

^aThe University of Hong Kong, School of Public Health, 21 Sassoon Road, Pokfulam, Hong Kong

^bPresent address: The University of Texas Southwestern Medical Center at Dallas, 5323 Harry Hines Blvd. Dallas, TX 75390-8589 Texas, United States

^c Caritas-Hong Kong, 2 Caine Road, Hong Kong

^d Present address: Department of Applied Social Sciences, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong

Correspondence to:
Professor TH Lam
Sir Robert Kotewall Professor in Public Health
The University of Hong Kong
School of Public Health
21 Sassoon Road
Pokfulam, Hong Kong
3917 9287

ABSTRACT

There is a shortage of culturally appropriate, brief, preventive interventions designed to be sustainable and acceptable for community participants in nonwestern cultures. Parents' ability to regulate their emotions is an important factor for psychological well-being of the family. In Chinese societies, emotional regulation may be more important in light of the cultural desirability of maintaining harmonious family relationships. The objectives of our randomized controlled trial were to test the effectiveness of our Effective Parenting Programme (EPP) to increase the use of emotional management strategies (primary outcome) and enhance the parent-child relationship (secondary outcome). We utilized design characteristics that promoted recruitment, retention, and intervention sustainability. We randomized a community sample of 412 Hong Kong middle- and low-income mothers of children aged 6-8 years to the EPP or attention control group. At 3, 6 and 12-month follow up, the Effective Parent Program group reported greater increases in the use of emotion management strategies during parent-child interactions, with small to medium effect size, and lower negative affect and greater positive affect, subjective happiness, satisfaction with the parent-child relationship, and family harmony, compared to the control group, with small to medium effect size. Our results provided evidence of effectiveness for a sustainable, preventive, culturally appropriate, cognitive behaviorally-based emotion management program, in a non-clinical setting for Chinese mothers.

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Key Words: parent training; emotional regulation; cognitive behavioral therapy; prevention;
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Highlights:

A brief, culturally appropriate parenting intervention improved emotion management strategies.

Intervention improved positive and negative affect, and increased relationship satisfaction

The design addressed recruitment, retention and sustainability in a community population.

Results were sustained at 12-month follow-up. (39).

INTRODUCTION

Preventive interventions with universal targets and small effect size create a larger public health impact on the population than selectively targeted interventions with larger effect size (Spath, Remond, & Shin, 1998). However, there is a shortage of effective brief interventions that target risk factors that precede a host of common difficulties. Interventions that are effective in low income groups and in cultures outside North America are even more needed. Parental emotion management problems were identified by parents in Hong Kong as an important area of intervention. Poor emotion management has been linked to numerous negative outcomes in children. We describe a randomized controlled trial (RCT) of an intervention to increase the use of brief cognitive behavioral emotion management strategies, decrease negative affect, and enhance positive affect, and increase subjective happiness, satisfaction with the parent-child relationship and family harmony among Hong Kong Chinese parents. The intervention was designed to be acceptable to local busy mothers and preventive for a healthy population to manage a self-identified risk factor that is associated with a broad range of negative outcomes. Our intervention is innovative in that it was developed and implemented in a nonwestern culture, and bridges the gap between psychology and public health by its brief, cost-effective and highly sustainable design intended to provide early interventions in healthy populations (Spijkers, Jansen, de Meer, & Reijneveld, 2010).

Study Aims

The aim was to test the effectiveness of an intervention to enhance the emotional management skills of the parents of Chinese children 6-8 years old in Hong Kong. Our study hypotheses were that, in comparison to control participants, parents receiving training in emotion

management skills would report a) greater increases in the frequency and perceived use of emotion management skills (primary outcomes) and b) greater reductions in negative affect and greater enhancements in positive affect, satisfaction with parent-child relationship, subjective happiness and family harmony (secondary outcomes), from pre- to post-intervention and from pre-intervention to each of the follow-up assessments. After the first pre-intervention assessment, the intervention participants were randomized by group to receive either one, two or no boosters before the 3-month post-intervention assessment. We hypothesized that adding a strong (two boosters) or weak (one booster) booster would increase the long-term follow-up outcomes in comparison to the group with no booster session. From the result of our pilot trial above conducted on a similar population, we projected moderate effect sizes.

Context of the study and the target of parental emotional regulation.

The current study was part of a larger project whose overarching goal was to enhance health, happiness, and harmony among local Hong Kong families, the FAMILY Project. The aim was to develop and implement new preventive interventions that were not only locally relevant, but with the potential to reach and be acceptable to a large proportion of the Chinese community (see Stewart, Fabrizio, Hirschmann, & Lam, 2012 for details). Qualitative research done early in the development phase indicated that Chinese parents identified difficulties with regulation of their emotions as having a negative impact on their relationships with their children (Stewart et al., 2012). In the earlier phase of the project, semi-structured group interviews with parents of primary school-aged children in Hong Kong revealed that parents experienced a significant rise in negative emotions as a result of conflicts with their children entering primary school (e.g., conflict over schoolwork and academic performance), which posed a threat to overall family harmony. These parents reported a subsequent loss of control over their emotions which led to

harsh parenting behaviors such as scolding, yelling, and even hitting. Parents told us that they wanted to learn positive (versus harsh/punitive) strategies to deal with their child's problem behaviors but did not want to compromise their child's academic success. In particular, they wanted help with managing their negative emotions and staying calm when dealing with their child's misbehavior. Moreover, many parents were very busy with their jobs and housework and could not find time for multiple and lengthy sessions.

The current intervention was developed therefore, with the aim to target parental emotional regulation, using the shortest possible time. Parents' ability to regulate their emotions is recognized as an important factor in parenting and the psychological wellbeing of the family (Dix, 1991). For parents, emotion regulation involves monitoring, interpreting and controlling emotions and their expression during interactions with their children. Ineffective regulation of emotions may lead parents to experience or express excessive or insufficient emotions, such as anger, which may in turn interfere with adaptive parenting practices. Parental anger, harshness, or negative expressivity, has been associated with child behavior problems and poor adjustment in North America and in China (Chang, Schwartz, Dodge, & McBride-Chang, 2003; Chen et al., 2011; Renk, Phares, & Epps, 1999). Furthermore, lack of control over negative emotions can increase the risk of child maltreatment (Mammen, Kolko, & Pilkonis, 2002; Peterson, Ewigman, & Vandiver, 1994; Rodriguez & Green, 1997).

Given the importance of parental emotion regulation, many parenting programs have an emphasis on assisting parents to control their negative emotions during parent-child interactions in addition to skill training (e.g., STAR, Fox, Fox, & Anderson, 1991; RETHINK; Fetsch, Schultz, & Wahler, 1999; Fetsch, Yang, & Pettit, 2008). By enhancing parental emotion management skills, these programs reduced the intensity and frequency of parental anger and

prevent the occurrence of harsh parenting practices, including physical aggression towards children. While many of these programs focused on at-risk or high-risk parents, there has been a recent shift towards a preventive approach (Spijkers, Jansen, de Meer, & Reijneveld, 2010; Spoth, Remond, & Shin, 1998).

To our knowledge, all of these programs have been developed in the West. Even though the importance of developing an intervention from within a culture has been recognized (Gergen, Gulerce, Lock, & Misra, 1996), family-based programs are usually imported into the new culture, typically with translations and locally adapted examples (Lau, 2006) without taking into consideration cultural norms and values (Spoth, Kavanagh, & Dishion, 2002). For example, the willingness to take on an extended parenting program may be higher in cultures where mental health interventions are common and parents are well educated about their own role in their children's psychological outcomes. Furthermore, parents may be more willing to subjugate certain parental goals such as academic achievement and hard work, to others such as child's self-esteem and self expression, in some cultures, but not in others. These differences would have implications for the motivation enhancement and manualization of a program.

Culture's influence on the role of emotions in interpersonal relationships

According to Tsai's (2007) affect valuation theory, individuals from different cultures may place different values on emotional experience and expression. In Chinese culture, qualitative research suggests that strong emotions (both positive and negative) are considered disruptive and something to be controlled rather than expressed (Bond, 1993) and Chinese individuals, more than European-Americans, may place a higher value on positive affect states with low intensity such as calmness (Tsai, Knutson, & Fung, 2006). Chinese individuals may be

particularly motivated to regulate their emotions when interacting with their family members so as to maintain the all important value of family harmony (Bond, 1993). Maintaining harmony within the family and fulfilling one's social duties is considered the ideal (Kwan, Hui, & McGee, 2010; Leung & Au, 2010). People from the Confucian cultural tradition, such as in China and Hong Kong, tend to define themselves in the context of their relationships with others, such that the self cannot be separated from the social context (Kwan et al, 2010). Modulating and controlling the expression of intense emotions such as anger, sadness and anxiety is important culturally among Chinese individuals and may be one strategy used to maintain harmonious relationships with others, especially family members (Lau, Lew, Hau, Cheung, & Berndt, 1990). The necessity of cultural adaptation is further supported by Tsai's (2007) affect valuation theory that differences in one's ideal affect are culturally learned. People from collective cultures, such as the Chinese, are encouraged to place others' needs ahead of their own and therefore, to adjust or change their preferences and behaviors to fit with others. Therefore, Chinese individuals, more than Europeans or Americans, tend to place a higher value on positive affect states with low intensity such as calmness (Tsai, Knutson, & Fung, 2006).

Cultural considerations in the intervention design

The present trial was one of a series within the FAMILY Project that shared the aim to create sustainable interventions by minimizing community burden and program costs so that, when evidence of benefit was confirmed, the programs could be disseminated throughout the territory (Fabrizio, Lam, Hirschmann & Stewart, 2013). Even in Western samples, for whom many interventions have been developed, few studies move from the evidence-generation "research" stage into wide use (Schoenwald & Hoagwood, 2001), and a specific mandate for this

study was the development of an intervention that was acceptable to and could enroll a wide section of the population rather than smaller groups of individuals at higher risk. Involvement of the community agencies from the concept development stage was an important strategy to maximize acceptability (see Stewart et al., 2012, Fabrizio et al., 2013 for more detail). We conducted focus groups with various stakeholder groups (parents, teachers, community social workers) regarding the needs of the community as well as characteristics of programs that would increase acceptability, even at the evidence-gathering stage. Extensive inclusion and exclusion criteria, lengthy assessments, and long programs that are conducted at inconvenient hours, were all identified as key barriers to enrollment and to future dissemination, and were all minimized in the design of this trial.

Cognitive-behavioral therapy (CBT) has a solid evidence-base and been proven effective in community and non-clinical settings (Beck & Dozois, 2011), including in the management of anger (Beck & Fernandez, 1998). Cognitive behavioral principles have been shown to enhance parental self-efficacy for emotional regulation and therefore to better implement more positive child-management skills (Jones & Prinz, 2005) and have been used in effective parenting interventions such as Friends (Shortt, Barrett & Fox, 2001) and Triple P (Sander et al, 2008). An initial question we had was about the appropriateness of these techniques in the local context.

The literature and input from local experts suggested that there is a conceptual overlap between key aspects of CBT and values rooted in Chinese culture (Hodges & Oei, 2007; Lin, 2002). For example, the use of skills training and homework reflects the cultural belief that desirable changes are achieved through learning and hard work (Hwang, 2006). Chinese participants may appreciate the active role of the group facilitator in the session (e.g., steering the direction of the session, playing the role of an expert, giving advice) given the emphasis on

social hierarchy and specific social roles in Chinese culture (Hodges & Oei, 2007). At the same time, the group experience allows for input relevant to the cultural context and support from the presence of others in similar roles. We included the following main process features of CBT in the program: (a) skills training (see below), (b) the use of homework outside of group sessions, (c) the focus on present versus past experiences, and (d) the direction of session activity by the group facilitator.

Development and structure of the intervention program.

Our development of an efficacious culturally-acceptable emotion management intervention in Hong Kong was particularly challenging as there were few models available for evidence-based psychosocial interventions or culturally-appropriate validated measures of change. To meet these challenges and create programs with high acceptability and adequate social validity, we involved the local community (e.g., stakeholders, local service providers and the general public) in the design, implementation and evaluation of the intervention (Wolf, 1978). We partnered with a renowned social services agency, Caritas-Hong Kong, to develop and deliver the emotion management intervention to local parents. We first tested the intervention in a small pilot RCT, which showed promising results at the 3-month follow-up (unpublished data). Trial recruitment and attendance were high (over 92% attended all 4 sessions) and provided quantitative evidence of acceptability. Additionally, the trial included extensive qualitative and quantitative feedback from the parent participants and the facilitators. Their feedback indicated that the program content, at home practice, and associated assessment questions needed to focus more on the desired parental behavior change. These changes were incorporated into the pilot trial. In addition, post-intervention boosters were added to enhance

outcomes and sustain the effects of the relatively brief program. Participants in experimental and control groups were offered one or two booster sessions at three and six months after the program ended to test the minimal level needed, within the goal of minimizing participant burden.

We then increased the sample size of the present RCT to enhance the reach and increase the statistical power, refined the content to include both cognitive and behavioral skills training, and extended the follow-up period to 12-months post-intervention.

The intervention included four weekly sessions, each lasting two hours. We chose this format to maximize efficiency; the program adequately covered key materials and allowed for practice of skills between sessions, yet remained brief enough to be acceptable to our community participants. The sessions covered the topics of emotional awareness, understanding the link between thoughts, behaviors and emotions, and learning four evidence-supported emotion management skills referred to as the four steps to managing your emotions (Figure 2). Each session focused on learning, practicing (in session and at home) one of the four emotion management strategies: (a) response modification (“Stop and Rest”), (b) relaxation/enhance positive moods (“Relax and Play”), (c) cognitive reframing (“Think”) and (d) using social support (“Talk and Share”). All sessions were led by the facilitator with considerable time devoted to discussion, practicing the behavior, and questions. Participants were asked to practice the behavior at home and keep a log of the frequency and results after practicing the behavior. Session examples were drawn from the early qualitative research in this population and included such triggers for parent emotion dysregulation from their child’s academic performance and study habits. Booster sessions were 1 to 1.5 hours long and included an opportunity to renew social contacts, and for brief content review, problem solving, and acknowledgment of gains.

METHODS

Participants

We targeted parents with at least one child enrolled as a current primary-school P.1 – P.3 student (equivalent to US Grades K – 2, and aged 6-8 years) living in five lower-to-middle income districts of New Territories West in Hong Kong. Children this age are subject to early but increasing academic demands and their parents invest heavily in their child's academic development (Stewart et al., 2012). Eligibility criteria were broad to extend population reach, for maximum public health benefit (Spoth et al., 2002). We included participants if they could comprehend written and spoken Chinese (Cantonese, the local dialect), as this was the language of the intervention and assessments. We only excluded those who reported an unstable mental condition or having a child with a severe developmental disability (e.g., autism).

Procedures

Given the lower socio-economic nature of the target population, we aimed to limit the burden on participants to increase the intervention's acceptability and retention, from the recruitment process to the final assessment period (Gross, Julion, & Fogg, 2001; Prinz et al., 2001). Therefore initial screenings were held over the phone, the intervention was limited to four, two-hour sessions, and venues were accessible by public transport, with childcare offered. We also minimized the length of the assessments and offered them at the same place and time as the intervention program sessions, to reduce the number of trips for the participants. We gave the baseline assessment just prior to the first session and the post intervention assessment following the last session.

We used recruitment and retention techniques that have worked for other FAMILY Project community interventions (Stewart et al., 2012; Fabrizio et al., 2013). We recruited

participants via letters to district schools, informational banners and kiosks in various public housing facilities, and personal referrals through the partner agency. The project social workers screened and recruited parents over the telephone for inclusion and exclusion criteria, after verbal consent. Our trained research assistant generated the random allocation sequence, using computer-generated random numbers, and then assigned eligible participants randomly to the intervention or control group using serially numbered, opaque, sealed envelopes (SNOSE) which ensured allocation concealment. The social workers then enrolled participants and obtained written informed consent before the start of the program. Neither participants nor intervention facilitators were blinded to the nature of the group assigned, as the intervention itself cannot be blinded.

We held intervention sessions at the partner agency branches located in the community where the participants lived. Social workers were trained as facilitators with a two-day workshop and then facilitated the groups of 6-10 participants each. If a participant missed a session, group facilitators conducted a brief (10-15 minute) make-up session over the telephone, at the participant's convenience. We administered the paper-and-pencil assessments, which could be completed in 20-30 minutes, in the study venue, at pre-intervention, post-intervention, and 3-month and 6-month follow-ups. Participants received HK\$400 (about US\$50) after completion of the five assessments, distributed as HK\$300 at 6-month follow-up and HK\$100 at 12-month follow-up. The Institutional Review Board at The University of Hong Kong/Hospital Authority Hong Kong West Cluster approved this study. Recruitment was conducted from August 2010 to May 2011. The intervention was conducted from November 2010 to June 2011, with follow-up through June 2012.

Facilitator Training and Supervision

Our interventionists were trained social workers from the partnering agency, all of whom were native to Hong Kong and fluent in Cantonese. An experienced clinical social worker who was a collaborator in developing the intervention and conducting the pilot trial conducted the training, which consisted of briefings, role-playing, and observations with feedback. Given our goal to eventually train paraprofessionals to conduct the intervention, session manuals were scripted in detail. Each session was videotaped with participants' consent and adherence to the manual was rated by two third-party research staff members. Fidelity was assessed with a checklist of all major points and examples for each topic to be covered during the session (approximately 12-15 points per session). Fidelity checklists and any issues of discrepancy were reviewed weekly by the principal investigator and project officer with rapid feedback provided to the interventionists.

Study Design

The Effective Parenting intervention was tested as part of a two-group RCT. The experimental group received the Effective Parenting intervention (described above) and the control group was offered two 2-hour informational sessions on improving the health of the family which we modeled after the agency's usual informational talks. Health information sessions were conducted in the same venues as the emotion management group sessions, but the group size was larger (15-20 people) to reduce the number of groups required and manpower burden.

Sample size calculations were based on observed effect sizes of the pilot trial results (Cohen's $f = .14 - .31$) as well as the service goals of the partnering agency. An a priori sample size calculation indicated that 150 participants per arm would be adequate (statistical power = .90) to allow for a 10% drop out rate over the study period and to detect small to moderate group x time interactions for study outcomes (Cohen's $f = .14 - .25$) from pre-intervention to the 6-month and

12-month follow-up. To increase power and to allow for more drop out, we aimed to enroll 200 per arm. To test booster effectiveness, after the first pre-intervention assessment, the intervention participants were randomized by group to receive either one, two or no boosters before the 3-month post-intervention assessment.

Measures

We conducted a mixed methods approach to evaluating the intervention and made several accommodations in the assessments to enhance the representativeness of the parents who would agree to participate. Our pre-intervention discussion groups showed that our participants, who had largely primary or secondary school education and had low income, had little experience with completing scales in questionnaires. Therefore, because Western validated scales are often lengthy, we selected short pencil and paper assessments developed by our team to improve the validity of responses. We decided against third party observation and/or ratings by family members as feedback from social workers and community members suggested that the very few participants willing to have observer ratings done in the home or to report on the behavior of other family members would not be representative of the local community.

Emotion management strategies. We mapped assessment items directly onto the program strategies or parental skills targeted. We used ten items to assess the frequency of emotion management strategies; eight items related to the four program-specific strategies: (a) Stop and Rest (e.g., “stop thinking about the situation and do something else”), (b) Relax and Play (e.g., “relax to calm down”), (c) Think (e.g., “think of the reasons why for your child’s behavior”), and (d) Share and Talk (e.g., “talk to family / friends”), and two items to assess the overall targets of the program: (a) “remain calm when your child misbehaves” and (b) “manage your anger when

your child misbehaves”. Cronbach’s α for this scale was .81. We asked participants the frequency of each response during their interactions with the target child over the past two weeks using a 5-point scale: 1 = *not at all* to 5 = *almost always*). Higher scores indicated more frequent use of emotion management strategies.

Perceived change in emotion management strategies. We also asked participants to report their perception of change in frequency of these strategies from the time before joining the program to each follow up assessment. Participants rated themselves from 1 = *decreased a lot* to 7 = *increased a lot* on each of the emotion management strategies such as “Compared to before I joined the program, I stop thinking about the situation and do something else when I get angry about my child’s misbehavior.”

Positive and negative affect. We developed a brief 10-item scale modeled after the Positive and Negative Affect Schedule (PANAS, Watson, Clark, & Tellegen, 1988) that reduced the evaluation burden. Native Chinese-speakers who were familiar with the study and with the local culture selected five positive and five negative affective states from the scale which were the most relevant to Chinese culture and to the parent population; all but four of the states were modified for local understanding. The positive affective states were: relaxed, happy, optimistic, calm, and enthusiastic. The negative affective states were: tense, worried, irritable, angry and depressed. We then asked parents to report how often they experienced or felt these in the past two weeks on a scale from 1 = *not at all* to 5 = *almost always*.

We conducted a principal component factor analysis that yielded two factors explaining a total of 68.4% of the variance. A rotated two-factor solution showed that all five positive affect items loaded on the first factor at $> .70$, which was labeled as the positive affect factor. Internal consistency of the positive affect scale was adequate (Cronbach’s $\alpha = .89$). All the negative

affect items loaded on the second factor at $> .61$, labeled as the negative affect factor, with Cronbach's α of .87. Scores were averaged to create a mean score for each factor, with higher scores indicating greater frequency of each state.

Satisfaction with parent-child relationship. We used a single item adapted from the Kansas Marital Satisfaction Scale (Schumm, Nichols, Shectman, & Grigsby, 1983) to assess parents' satisfaction with their relationship with the target child. Participants rated how satisfied or unsatisfied they were with their relationship with their child on a 6-point scale: 1 = *extremely dissatisfied* to 6 = *extremely satisfied*.

Subjective happiness. We used the 4-item Subjective Happiness Scale (Lyubomirsky & Lepper, 1999), previously translated into Chinese (Yeung & Fung, 2007), as a rating of subjective happiness. Participants rated how well each statement or question described themselves. For example, "In general, I consider myself: 1 = *not a very happy person* to 7 = *a very happy person*." This scale has shown adequate internal consistency in Chinese populations ($\alpha = 0.79$, Yeung & Fung, 2007; Cronbach's $\alpha = 0.79$; present study). Scores were averaged to create a mean score, with higher scores indicating higher levels of happiness.

Family harmony. We developed and validated an 8-item scale (Yu, Tam & Lam, 2011) to assess this highly valued cultural outcome. The 8-item scale assessed the current level of subjective harmony among participants and their family members. Participants rated how much they agreed or disagreed with each statement about their family (e.g., "My family gets along well") on a 5-point scale: 1 = *strongly disagree* to 5 = *strongly agree*. The pilot phase of the current study indicated that all items loaded on a single factor and showed good internal consistency (Cronbach's $\alpha = 0.94$; present study Cronbach's α of .94). For our analysis, scores were averaged to create a mean score, with higher scores indicating higher levels of family

harmony.

Program evaluation. We developed three individual items to assess acceptability of the program. These items were administered anonymously after the last assessment was completed. Questions were face-valid ratings of (a) how much participants liked the program, (b) how useful they found the program, and (c) whether they would recommend the program to friends / family. All ratings were made on a 5-point scale with 5 being the most desirable. In addition, we invited a convenience sample of 19 intervention participants to give in depth feedback about their experiences in the program in a semi-structured post-intervention group interview. Excerpts of the discussions are reported below.

We conducted intention to treat (ITT). As the results of the ITT analysis were the same as a complete analysis using participants who completed all assessments (n=323), only the ITT analysis is reported here (see Tables 1 - 3).

RESULTS

Participants

412 of the 793 recruited participants were eligible. Of the 381 excluded participants, 141 did not meet the criteria and 240 were not available or no longer interested (Figure 1). We randomly allocated the 412 to the intervention (n=206) and control group (n=206). In the two month period between eligibility screening over the phone and the start of the intervention when comprehensive baseline data was collected, 47 participants (11.4%) dropped out of the study (intervention n=21; control n=26) and did not have any baseline data. Participants cited time conflicts and job-related issues as the main reasons for drop out at this time. Therefore, we included the remaining 365 participants who completed the first assessment.

Participants (n=365) had a mean age of 37 years (range = 25 to 53 years) and were 100% ethnic Chinese and female. Almost 70% were born outside Hong Kong (i.e., in Mainland China).

The majority were married (91.5%), described themselves as housewives (not working outside the home, 78.9%), and had some primary or secondary school education (grade 1 – 12 in the US, 92.6%). Annual household income (AHI) was used as a proxy of socioeconomic status; 75.7% lived in households earning less than the median annual household income for Hong Kong residents (approximately US\$31,156; Census and Statistics Department Hong Kong, 2011). The majority (90.2%) had two or fewer children.

At baseline, participants assigned to the two groups did not differ on any of the socio-demographic factors (see Table 1). There were also no group differences in the primary outcome (frequency of emotion management strategies). However, the emotion management group reported themselves as worse off than the control group on all five secondary outcomes.

Insert Table 1

Fidelity

The trained fidelity monitors rated the facilitators at 94% full compliance with the emotion management components of the intervention. We attributed these satisfactory results to our training and on-going supervision with feedback.

Primary Outcome

Frequency of emotion management strategies.

We used a generalized estimating equation model at a follow-up time point with baseline to test whether there were differential changes in frequency of emotion management strategies across the intervention and control groups over the five assessment timepoints (post-intervention and 3, 6 and 12-months follow-up). Cohen's F (1988) was used as an effect size estimator for group by time interaction and defined as small=.10, medium =.25 and large =.40. When baseline

levels of outcomes were taken into account, results revealed significant Group x Time interaction, Wald $\chi^2 = 80.38$, $p < .001$, Cohen's $f = .42$ (see Figure 3). Table 2 shows that the emotion management group reported greater increases in the use of emotion management strategies from before to after the intervention than the control group and this effect was sustained at 12-month follow-up. The effect sizes were mostly small to medium.

Insert Table 2

Perceived change in use of emotion management strategies.

We analyzed the 10 perceived change items with a multivariate analysis of variance (MANOVA) at post-intervention and each follow-up assessment. Due to drop out ($n=15$) before the post-intervention session (the first measure of perceived change items), 350 participants (174, emotion management group; 176, control group) were included in the analysis. Compared to controls, the intervention group perceived significantly greater changes, with large effect sizes, in the 10 targeted emotion management strategies at the post-intervention assessment, $F(10, 340) = 16.19$, $p = .001$, Cohen's $f = .70$, as well as at 3-month follow-up, $F(10, 340) = 9.89$, $p = .001$, Cohen's $f = .55$, 6-month follow up, $F(10, 340) = 8.48$, $p = .001$, Cohen's $f = .51$, and 12 month follow-up, $F(10, 340) = 6.21$, $p = .001$, Cohen's $f = .39$. Overall, the effect size for perceived changes was greater than the effect size for the changes in the frequency of emotion management strategies in Table 2.

Secondary Outcomes

Positive and negative affect satisfaction with parent-child relationship, subjective happiness, family harmony

For all secondary outcomes, we used a generalized estimating equation model to show a significant Group x Time interaction [negative affect, $Wald\chi^2 = 28.21, p < .001$, effect size = .27; positive affect, $Wald\chi^2 = 25.66, p < .001$, effect size = .26; satisfaction with parent-child relationship, $Wald\chi^2 = 21.01, p < .001$, effect size = .23; subjective happiness, $Wald\chi^2 = 26.90, p < .001$, effect size = .26 (Cronbach's alpha for Subjective Happiness is 0.79); and family harmony, $Wald\chi^2 = 30.51, p < .001$, effect size = .28] (Table 3).

Insert Table 3

We found a significant interaction for all secondary outcomes from pre- to post-intervention and for subjective happiness and family harmony at each of the follow-up assessments with small to medium effect (Table 2).

Booster Effect

We examined the combined effect of receiving either one or two boosters versus not receiving any booster within the emotion management group, at six months post intervention (n=185). When baseline levels of outcomes were taken into account, compared to participants with no booster session, those who received one or more boosters reported greater reduction in negative affect ($p < .01$, Cohen's $f = .24$) and increase in positive affect ($p < .02$, Cohen's $f = .18$), greater enhancement of their confidence to control anger while parenting ($p < .03$, Cohen's $f = .16$), greater increase in family harmony ($p < .01$, Cohen's $f = .21$); and greater increase in happiness ($p = .052$, Cohen's $f = .15$). The increase in happiness was not significant, probably due to insufficient statistical power. The small numbers also did not allow for analysis by number of boosters.

Program evaluation

94.8% and 85.6% of the intervention participants rated the program at 4 or above (out of 5) for liking the program and usefulness, respectively. In addition, 94.8% of participants would recommend or strongly recommend the program to their family or friends.

During the post-intervention discussion interview, many participants reported that the emotion management training helped them manage their negative emotions during parent-child conflicts. For example, one mother said: “I changed a lot as to how I express my emotions after this program. Now, I attempt to think from the perspective of the children when I start to get angry, or when they misbehave.” A second mother’s quote illustrates the positive impact on family relationships: “I have a closer relationship with my daughter after joining the FAMILY program. She is now more willing to share her feelings with me. She talks with me about what happened in school and what homework is assigned.”

DISCUSSION

We used an RCT design to test a brief emotion management training intervention for a general community sample of Hong Kong mothers. We found that mothers who underwent the brief training used more emotion management strategies during parenting situations than mothers in the control group. In addition, we found that intervention mothers reported greater decreases in negative affect and greater increases in positive affect, satisfaction with parent-child relationships, subjective happiness, and family harmony, than control mothers reported. The parental skills learned enabled the mothers to bridge the gap between the intense emotions such as anger, sadness and anxiety generated by conflict with their children, and the desire to modulate and control those emotions. The ability to control their affect likely contributed to the perceived improvements in parent-child relationship, subjective happiness, and family harmony.

Despite the brevity of the intervention, these effects were sustained over the twelve month follow-up period, which may reflect the advantage of using a cognitive-based skill.

The strengths of the study were the cognitive behavioral theoretical basis, the preventive public health approach, the large sample size, the length of the follow-up, and the mixed methods approach to evaluation.

This program is unique in that it uses a brief cognitive behavioral training for a community sample, by community practitioners, in a Chinese society. Cognitive behavior therapy (CBT) has been utilized extensively in the West, although primarily for targeted at-risk or high-risk parents to regulate their emotions during parent-child interactions (Star, Fox, Fox, & Anderson, 1991; RETHINK; Fetsch, Schultz, and Wahlet, 1999; Fetsch, Yang, & Pettit, 2008). The Triple P intervention also takes a public health approach in that the basic levels of the program are conducted on an unscreened, community sample: however, recruitment for, and facilitation of, the intervention are conducted in a healthcare setting and the intervention is delivered via media, printed materials or one brief (20 minute) face-to-face interview (Sanders et al., 2008; Prinz et al., 2009). More intensive level Triple P interventions offer more parental skills training (4 sessions) to parents of at-risk children, with a focus on a discrete behavioral problem. The basic level Triple P intervention has been tested in Hong Kong; however, other than translation of the materials, it was not adapted to the cultural context (Leung et al., 2003) and the sample size was small (less than 100 parents). This study had several limitations. We used self-report measures exclusively, including those created for the present study. While self-report measures are common in psychological research and one of the few options acceptable to community participants, third-party observer ratings or reports from child and/or spouse would have increased the validity of our findings. Additionally, although few existing scales had been

validated in our sample or were considered brief enough for our sample, standardized and validated assessments would have allowed for comparison across other studies. We made this accommodation to the underserved target population to increase participant retention, as both participants and our service sector partners felt that the declining cooperation would threaten the validity and reliability of the responses from long questionnaires or interviews. We had received adverse comments here or elsewhere from participants and social workers that the burden was too much and cooperation declined at the latter part of the questionnaire, threatening the validity and reliability of the answer. However, because the scales were brief and valid primarily at face level, the results presented here provide only initial evidence for the effectiveness of the program. The length of exposure in the control and experimental groups was not identical; it is possible that two additional sessions for the control group might have diminished the differences in the contact time for the two programs. In addition, because our aim was to create a program meeting the specific needs of Hong Kong Chinese mothers, our findings might not be generalizable to Hong Kong Chinese fathers. Individuals who identify themselves as Chinese make up a fifth of the world's population (United Nations), spread across many geographic regions as majority and minority sub-cultures. Although Hong Kong residents share many values with their counterparts in other Chinese cultures, the effectiveness of this program in individuals of other Chinese and non-Chinese cultures remains to be demonstrated.

CONCLUSION

In a Chinese society such as Hong Kong, there is limited access to mental health services and strong stigma associated with using formal mental health resources (Fabrizio et al, 2013). This RCT on a brief cognitive-behavioral emotion management intervention for mothers has

provided solid evidence that cognitive behavior techniques can help control emotions and improve the parent-child relationship and positive and negative affect in Chinese in non-clinical settings. An important contribution of this study is that it was conducted not only in a nonwestern culture, but that is targeted a medium- and low-income sample, reinforcing the applicability of cognitive behavioral strategies in different groups and settings.

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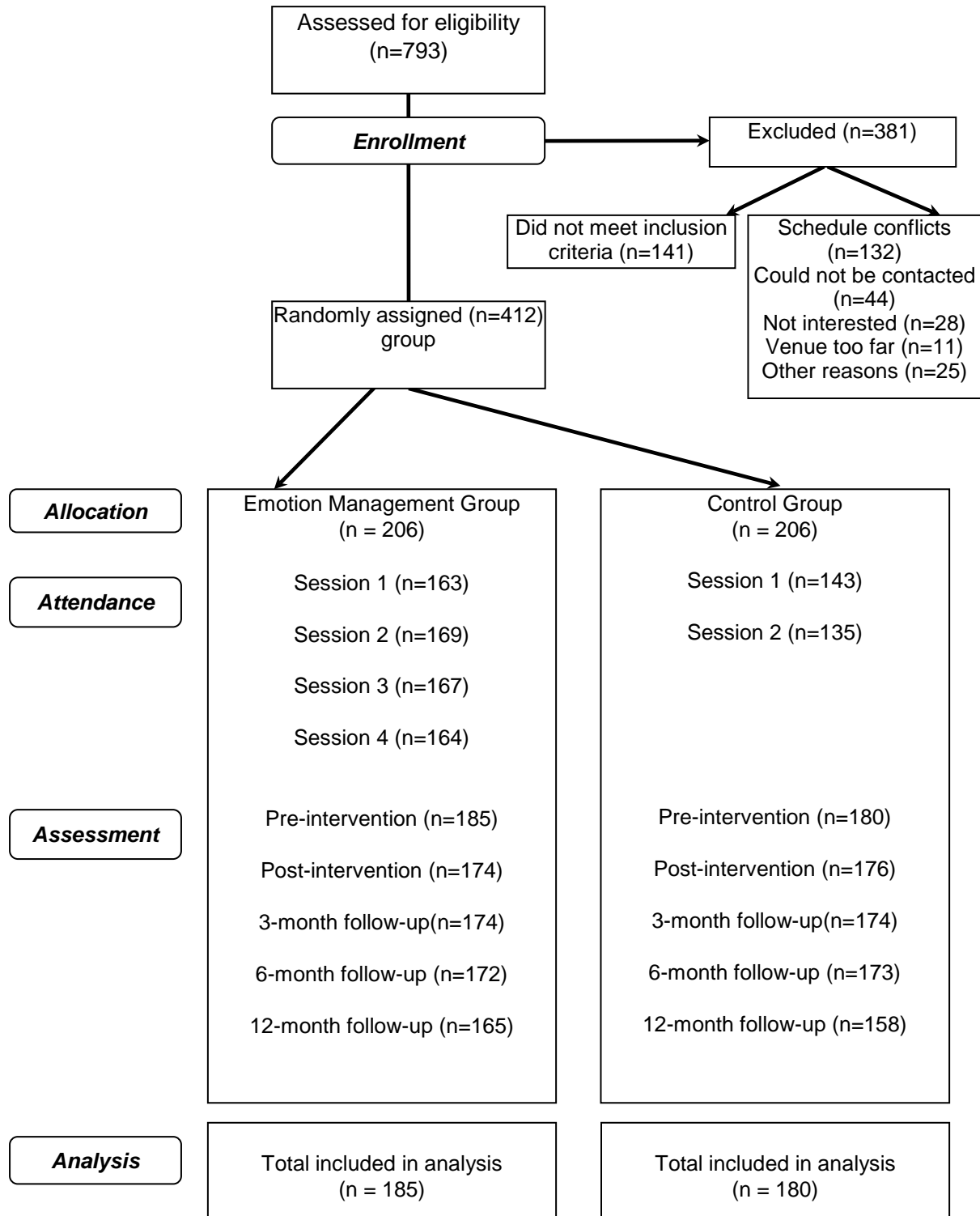


Figure 1: CONSORT Diagram

Table 1

Baseline Demographic and Other Characteristics by Group

Variables	Emotion Management Group	Control Group	<i>p</i> -value ^a
	(n = 185) <i>M (SD) or %</i>	(n = 180) <i>M (SD) or %</i>	
Age	37.20 (5.41)	37.06 (5.10)	0.80
Place of Birth			0.54
HK	32.4%	29.4%	
Outside HK	67.6%	70.6%	
Marital Status			0.79
Married	91.9%	91.1%	
Single ^b	8.1%	8.9%	
Education Level			0.66
Primary	8.1%	6.7%	
Secondary/Form 5	65.9%	64.4%	
Matriculation/Senior secondary	16.2%	15.6%	
Technical/vocational training	2.2%	5.0%	
Tertiary/University or above	7.6%	8.3%	
Working Status			0.60
Housewife	80.0%	77.8%	
Non-housewife ^c	20.0%	22.2%	
Household Income (HK\$) (US\$ 1=HK\$7,80)			0.19
CSSA	9.2%	13.9%	
<\$2,000	0.0%	1.1%	
\$2,000-\$5,999	3.8%	3.9%	
\$6,000-\$9,999	19.5%	26.7%	
\$10,000-\$19,999	38.4%	33.9%	
\$20,000-\$29,999	15.7%	8.9%	
\$30,000 or above	10.3%	8.9%	
No income, depending on savings	3.2%	2.8%	
Number of Children	1.78 (0.58)	1.77 (0.69)	0.80
Primary Outcome			
Emotion Management Strategies	2.67 (0.57)	2.64 (0.65)	0.63
Secondary Outcomes			
Negative Affect	3.00 (0.74)	2.82 (0.79)	0.03
Positive Affect	3.06 (0.66)	3.22 (0.78)	0.03
Satisfaction with Relationship	4.06 (1.09)	4.31 (1.07)	0.03
Subjective Happiness	3.97 (0.86)	4.19 (0.99)	0.02
Family Harmony	3.55 (0.67)	3.75 (0.73)	0.01

^a *p*-values based on two samples independent t-test or chi-square

^b Single parent included participants who were never married, divorced or widowed

^c Non-housewife included mothers working full-time, part-time, and unemployed/waiting for job

CSSA =Government assistance

Table 2: Effectiveness analysis for comparisons between EM and control groups in *Generalized Estimating Equation model at a follow-up time point with baseline, using ANOVA (Completer analysis)*

	EM group	Control Group	EM group versus Control group		
	Mean(S.E.)	Mean(S.E.)	F	<i>p</i>	Effect size
Primary Outcomes					
Emotion Management Strategies ^a					
Post-intervention – baseline	0.61(0.05)	0.05(0.04)	72.66	<.001	0.41
3-month follow-up – baseline	0.52(0.05)	0.12(0.05)	30.97	<.001	0.28
6-month follow-up – baseline	0.62(0.06)	0.16(0.05)	33.37	<.001	0.29
12-month follow-up – baseline	0.47(0.06)	0.18(0.06)	13.65	<.001	0.19
Secondary Outcomes					
Positive Affect^a					
Post-intervention – baseline	0.37(0.05)	0.05(0.05)	20.59	<.001	0.23
3-month follow-up – baseline	0.38(0.05)	0.21(0.05)	4.86	.028	0.11
6-month follow-up – baseline	0.46(0.05)	0.18(0.05)	14.58	<.001	0.20
12-month follow-up – baseline	0.43(0.05)	0.18(0.05)	12.31	<.001	0.18
Negative Affect^b					
Post-intervention – baseline	-0.39(0.05)	-0.10(0.04)	22.88	<.001	0.24
3-month follow-up – baseline	-0.41(0.06)	-0.25(0.05)	6.48	.011	0.13
6-month follow-up – baseline	-0.48(0.06)	-0.18(0.05)	15.38	<.001	0.20
12-month follow-up – baseline	-0.45(0.05)	-0.19(0.05)	12.27	<.001	0.18
Satisfaction With Relationship ^a					
Post-intervention – baseline	0.43(0.07)	0.04(0.06)	18.04	<.001	0.22
3-month follow-up – baseline	0.44(0.07)	0.18(0.07)	6.51	.011	0.13
6-month follow-up – baseline	0.50(0.07)	0.21(0.07)	8.49	.004	0.15
12-month follow-up – baseline	0.50(0.08)	0.12(0.07)	13.63	<.001	0.19
Subjective Happiness^a					
Post-intervention – baseline	0.33(0.05)	-0.02(0.07)	16.37	<.001	0.21
3-month follow-up – baseline	0.43(0.06)	0.10(0.06)	15.09	<.001	0.20
6-month follow-up – baseline	0.51(0.06)	0.08(0.06)	24.10	<.001	0.25
12-month follow-up – baseline	0.47(0.06)	0.09(0.06)	18.26	<.001	0.22
Family Harmony^a					
Post-intervention – baseline	0.22(0.03)	-0.03(0.04)	27.09	<.001	0.26
3-month follow-up – baseline	0.25(0.04)	0.02(0.04)	18.45	<.001	0.22
6-month follow-up – baseline	0.32(0.04)	0.05(0.04)	19.80	<.001	0.23
12-month follow-up – baseline	0.28(0.04)	0.01(0.05)	17.49	<.001	0.21

Note: EM Group = Emotion Management Group

Effect sizes are indicated by Cohen's *f* (1988), and defined as small = .10, medium = .25, and large = .40.

^a Negative change indicates improvement

^b Positive change indicated improvement.

Table 2': Effectiveness analysis for comparisons between EM and control groups in *Generalized Estimating Equation model at a follow-up time point with baseline, using ANOVA (Intention to Treat)*

	EM group n=185 Mean(S.E.)	Control Group n=180 Mean(S.E.)	EM group versus Control group		
			F	p	Effect size
Primary Outcomes					
Emotion Management Strategies					
Post-intervention – baseline	0.61(0.70)	0.05(0.53)	72.66	<0.001	0.41
3-month follow-up – baseline	0.52(0.73)	0.11(0.67)	31.20	<0.001	0.28
6-month follow-up – baseline	0.61(0.80)	0.16(0.70)	32.67	<0.001	0.29
12-month follow-up – baseline	0.45(0.75)	0.17(0.72)	13.50	<0.001	0.19
Secondary Outcomes					
Positive Affect^a					
Post-intervention – baseline	0.37(0.66)	0.05(0.63)	20.59	<0.001	0.23
3-month follow-up – baseline	0.38(0.65)	0.20(0.64)	5.197	0.023	0.12
6-month follow-up – baseline	0.46(0.74)	0.18(0.65)	14.15	<0.001	0.19
12-month follow-up – baseline	0.40(0.70)	0.17(0.66)	12.47	<0.001	0.18
Negative Affect^b					
Post-intervention – baseline	-0.39(0.68)	-0.10(0.53)	22.88	<0.001	0.24
3-month follow-up – baseline	-0.41(0.76)	-0.24(0.66)	6.83	0.009	0.14
6-month follow-up – baseline	-0.47(0.81)	-0.18(0.68)	14.87	<0.001	0.20
12-month follow-up – baseline	-0.42(0.74)	-0.17(0.63)	10.90	0.001	0.17
Satisfaction With Relationship^a					
Post-intervention – baseline	0.43(0.91)	0.04(0.82)	18.04	<0.001	0.22
3-month follow-up – baseline	0.44(1.02)	0.18(0.92)	6.55	0.011	0.13
6-month follow-up – baseline	0.50(1.00)	0.21(0.91)	8.23	0.004	0.15
12-month follow-up – baseline	0.49(1.03)	0.09(0.90)	15.22	<0.001	0.20
Subjective Happiness^a					
Post-intervention – baseline	0.33(0.75)	-0.02(0.90)	16.37	<0.001	0.21
3-month follow-up – baseline	0.43(0.79)	0.09(0.84)	15.62	<0.001	0.20
6-month follow-up – baseline	0.50(0.87)	0.07(0.80)	23.68	<0.001	0.25
12-month follow-up – baseline	0.45(0.87)	0.07(0.78)	19.24	<0.001	0.22
Family Harmony^a					
Post-intervention – baseline	0.22(0.45)	-0.03(0.50)	27.09	<0.001	0.26
3-month follow-up – baseline	0.25(0.54)	0.02(0.50)	18.31	<0.001	0.22
6-month follow-up – baseline	0.31(0.58)	0.05(0.57)	18.43	<0.001	0.22
12-month follow-up – baseline	0.27(0.59)	0.00(0.62)	17.25	<0.001	0.21

Note: EM Group = Emotion Management Group

Effect sizes are indicated by Cohen's *f* (1988), and defined as small = .10, medium = .25, and large = .40.

^a Negative change indicates improvement

^b Positive change indicated improvement.

Table 3. Effectiveness analysis for comparisons between EM and control groups in *Generalized Estimating Equation model, using Wald χ^2*

	EM group versus Control group		
	Wald χ^2	<i>p</i>	Effect size
Primary Outcomes			
Emotion Management Strategies	80.38	<.001	0.42
Secondary Outcomes			
Negative Affect	28.21	<.001	0.27
Positive Affect	25.66	<.001	0.26
Satisfaction With Relationship	21.01	<.001	0.23
Subjective Happiness	26.90	<.001	0.26
Family Harmony	30.51	<.001	0.28

Note: EM Group = Emotion Management Group

Effect sizes are indicated by Cohen's *f* (1988), and defined as small = .10, medium = .25, and large = .40.