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ORIGINAL ARTICLE

An Australian adaptation of the Strengthening Families Program: Parent and child mental health outcomes from a pilot study

Michele Burn[1] | Andrew Lewis[2] | Louise McDonald[3] | John W. Toumbourou[1]

[1]School of Psychology, Deakin University, Geelong, Victoria, Australia

[2]School of Psychology & Exercise Science, Murdoch University, Murdoch, Western Australia, Australia

[3]Prevention Services, Barwon Child, Youth and Family, Geelong, Victoria, Australia

Correspondence
Michele Burn, School of Psychology, Deakin University, Geelong Waterfront Campus, 27 Brougham Street, Geelong, VIC 3220, Australia.
Email: michele.burn@deakin.edu.au

Objective: This is the first pilot study to examine the Australian adaptation of the Strengthening Families Program (SFP), a manualised family intervention recommended internationally in evidence reviews to improve family functioning and child mental health. The study compared two versions (8 vs. 14-session) and longitudinally evaluated outcomes for child emotional and behavioural difficulties, and parental psychological distress.

Method: Fifty-eight families from disadvantaged primary schools in regional Victoria with children 8–12 years (80.6% of initially enrolled families, 62 parents and 74 children) completed the program and evaluation measures. Measures were repeated at pre-, post-, and 3-month follow-up and included the Kessler 6, the Strengths and Difficulties Questionnaire, and subscales adapted from the Longitudinal Study of Australian Children and Communities that Care Youth Survey.

Results: The program showed significant reductions in child difficulties and parental psychological distress from pre- to post-measurements that were sustained at follow-up. Reductions in parental psychological distress were significantly associated with reductions in child difficulties at follow-up. The 8- and 14-session formats were not found to be significantly different in reducing child difficulties or parental psychological distress. Effect sizes for the Australian version were similar to those reported in previous U.S. trials.

Conclusions: Findings support the feasibility and effectiveness of an Australian adaptation of the SFP. The current study is unique in identifying similar outcomes for shorter and longer versions of the intervention. It is recommended that the 8-session Australian version is examined in a larger randomised controlled trial where children present with behavioural and emotional problems.

KEYWORDS

child behavioural problems, child emotional problems, family-based intervention, mental health, parental psychological distress, prevention

1 | INTRODUCTION

There are high rates of child mental health (CMH) problems in Australia, particularly in families who are socioeconomically disadvantaged (Lawrence et al., 2015). Child and parental mental health (PMH) problems can be reciprocal influences (Early, Gregoire, & McDonald, 2002) and are affected by family factors, including the parent–child relationship (Sander & McCarty, 2005). As such, family-based interventions have been promising for advancing both PMH and CMH (Cluxton-Keller, Riley, Noazin, & Umoren, 2015; Galbally & Lewis, 2017; Poole et al., 2018). Using a family systems approach, family interventions can address a range of risk factors that may reciprocally undermine family mental health (Carr, 2018; Kazdin, 2015), such as hostile parenting (e.g., Chang, Schwartz, Dodge, & McBride-

Chang, 2003; Edwards & Maguire, 2011) and family conflict (e.g., Herrenkohl, Lee, Kosterman, & Hawkins, 2012; Lewis et al., 2015).

Family-based interventions are considered one of the most effective treatments in supporting the reduction of CMH disorders (Carr, 2018). Meta-analytic and systematic reviews have found family and parenting interventions are effective in treating a broad range of emotional (e.g., anxiety disorders; Creswell & Cartwright-Hatton, 2007), behavioural (e.g., delinquency; Maughan, Christiansen, Jenson, Olympia, & Clark, 2005), and substance use problems (United Nations Office on Drugs and Crime [UNODC], 2010).

Increasingly, evidence indicates that family-based CMH interventions also have beneficial outcomes for PMH and wellbeing (Yuen & Toumbourou, 2008). Randomised controlled trials (RCTs) have found that family interventions targeting youth depression and anxiety symptoms significantly reduced parental anxiety (Bertino et al., 2013), stress and depressive symptoms (Poole et al., 2018), beyond parent or youth only treatment. A recent systematic review and meta-analysis also reported that family therapeutic interventions embedded within general paediatric care improved PMH (Cluxton-Keller et al., 2015). For example, parental psychological distress and depression were found to significantly decline after intervention with small to moderate effect sizes. These improvements raise the question as to whether similar findings can be generalised to programs in other settings.

While both PMH and CMH have been observed to improve in family-based interventions that target CMH (Poole et al., 2018), intervention mechanism studies have not directly examined whether a reduction in child emotional and behavioural problems contributes to subsequent improvements in parents' level of psychological distress. In line with transactional models of development and a family systems perspective, it is theorised that parental stress and depressive symptoms may decline due to improvements, or perceived improvements in CMH and their related impact in reducing family conflict and increasing perceived parenting effectiveness (Gross, Shaw, & Moilanen, 2008; Sander & McCarty, 2005).

The *Strengthening Families Program* (*SFP*; Kumpfer, Magalhães, Whiteside, & Xie, 2016) is an internationally recognised evidence-based family intervention reported to be efficacious in RCTs and Cochrane reviews (e.g., Foxcroft, Ireland, Lister-Sharp, Lowe, & Breen, 2003; Spoth et al., 2007). The SFP was originally designed to target high-risk families of parents with substance use disorders who had children aged 6–11 years (*SFP 6–11 Years*; Kumpfer, Magalhães et al., 2016). In addition to reducing risk of substance misuse, the SFP has been found to be effective in reducing children's emotional and behavioural problems, including anxiety, depression, conduct problems, aggression, and delinquency (Brody et al., 2012, 2013; Kumpfer & Magalhães, 2018). The U.S. evaluations of the *SFP 6–11 Years* reported improved parenting and child outcomes, with predominately moderate effect sizes (Kumpfer, Alvarado, Tait, & Whiteside, 2007; Kumpfer, Whiteside, Greene, & Allen, 2010).

Later applications of the SFP were successfully trialled as briefer programs (i.e., seven sessions; Spoth et al., 2007) and adapted for children of a wider age range (i.e., 0–17 years; Kumpfer & Magalhães, 2018). Cultural adaptations have also been found to be effective for families from varied backgrounds and ethnicities (e.g., African American, Asian, and American Indian populations; Kumpfer, Alvarado, Smith, & Bellamy, 2002). Recommendations have been previously made to trial family prevention programs, like the SFP, in Australia (Catania, Hetrick, Newman, & Purcell, 2011).

The *Strengthening Family Connections* (*SFC*) program is the first adapted version of the SFP for the Australian context. The SFC program was implemented as a selective prevention intervention, targeting families with children at high-risk of mental health problems based on social disadvantage (Gladstone & Beardslee, 2009; Shore, Toumbourou, Lewis, & Kremer, 2018). The intervention was designed for delivery in disadvantaged primary schools to promote socialisation and connection of families within the school system (Domitrovich et al., 2010; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). School disadvantage was defined as schools having significant welfare needs or being under-resourced in provisions to address high needs as indicated by the Department of Education and Training Victoria (Department of Education and Early Childhood Development, 2013). This adaptation of the SFP was undertaken

WHAT IS ALREADY KNOWN ON THIS TOPIC

1. Australian children have high rates of mental health problems, particularly in socioeconomically disadvantaged families.
2. Internationally, the Strengthening Families Program (SFP) is widely recommended to improve child mental health.
3. However, there has been no previous Australian trial of the SFP.

WHAT THIS PAPER ADDS

1. An Australian adaptation of the SFP was found to be feasible for recruiting disadvantaged families.
2. Mental health improvements were observed for both parent and child participants.
3. Outcomes were similar for an 8- and 14-session version.

with the authorisation and consultation from the SFP program developer, Professor Karol Kumpfer.

The present article reports findings from the SFC evaluation. The evaluation had three central aims. First, to assess whether the Australian SFC program supported improvement in the parent and CMH outcomes, comparable to the SFP. Second, to determine whether there is an effect of treatment through the implementation of a briefer 8-session SFC program, that is comparable to a 14-session program. Finally, to investigate whether possible reductions in parental psychological distress related to improvements in CMH (Beach et al., 2008), parenting and family conflict. In the current study, a parent refers to the primary caregivers of the child, including grandparents, foster, and adoptive parents.

It was hypothesised that there would be a significant reduction in child emotional and behavioural difficulties post-program and at a 3-month follow-up, with a greater effect found in the 14-session version of SFC, compared to the 8-session version. Second, it was hypothesised that there would be a significant reduction in parental psychological distress post-program and at a 3-month follow-up, with a greater effect found in the 14-session SFC, compared to the 8-session version. Finally, greater reductions in parental psychological distress at 3-month follow-up were hypothesised to be associated with greater reductions in children's emotional and behavioural difficulties, family conflict, and parental hostility post-program and at 3-month follow-up.

2 | METHOD

The current study utilised a repeated measures pre-, post-, and 3-month follow-up design. Primary analyses compared data from participants who had completed the 14- and 8-session program. This approach was appropriate as dosage was a key variable of interest and is a major factor in program success (Kumpfer, Scheier, & Brown, 2018). To meet the criteria of program completer and to be included in analyses, both the parent and child had to attend over 50% of the SFC program. This definition of program completer was adopted from conventions used in other family-based intervention trials (e.g., Valdez, Mills, Barrueco, Leis, & Riley, 2011).

2.1 | Participants

Seventy-two families ($n = 80$ parents; $n = 92$ children) enrolled in the program, with 80.6% of families completing the program (defined as a minimum attendance of five sessions in the 8-session program and eight sessions in the 14-session program for both parent and child). Seventy-seven parents (M age = 40.6 years, $SD = 7.9$; 84.4% female) and 89 children (aged 7–12 years, $M = 9.4$ years, $SD = 1.3$; 49.5% females) completed baseline measures.

The majority of parents were Australian-born (98%). Most families resided in lower socio-economic areas of regional Victoria (81%) were unemployed (48.7%) or had casual or part-time work (32.9%), and 64% had not completed high school education. Among parents, 54.6% were married, or in a de facto relationship, 9.1% had a partner, and 36.4% were not currently in a relationship. The children's grade level ranged from Grade 2 to Grade 6, with most children being in Grade 3 (31.9%) or Grade 4 (27.5%). In some cases, multiple children from the same families were included in the program: 17 families had two children participate, and one family enrolled with three children participating.

Figure 1 describes the attrition of participants in the SFC programs after enrolment. Data collection occurred pre-program (also referred below as baseline, T1), post-program (T2), and at 3-month follow-up (T3). A total of 56 parents and 74 children who completed SFC completed pre–post-data. A total of 52 parents and 62 children completed pre- and 3-month follow-up data. See Table 1 for the baseline distribution of children and parents across the 8- and 14-session program. Chi-square analyses revealed no significant differences in the gender, relationship to the child, level of education, employment status, or ethnicity of parents allocated to the 8 vs. 14-session program. Similarly, chi-square analyses found no significant differences between parent completers and non-completers of the program in gender, relationship to the child, employment status, level of education, and ethnicity. Independent sample t tests were conducted to compare the level of family conflict, child and parent-rated child difficulties, parental hostility, and parental psychological distress at baseline for program completers and non-completers. There was no significant difference in levels of parental hostility, family conflict, and child and parent-rated child difficulties for completers and non-completers at baseline. However, there was a significant difference in non-completers ($M = 17.5$, $SD = 6.51$) and program completers ($M = 12.10$, $SD = 5.01$; $t[73] = 3.43$, $p = 0.001$) level of psychological distress at baseline, indicating parents were more likely to be non-completers of the program if they had higher levels of distress at baseline.

2.2 | The Strengthening Family Connections program

The SFC program is a manualised, multi-family program based on the *SFP 6–11 Years* (Kumpfer, Magalhães et al., 2016). The program is skills-based and designed for up to eight families in each group and participation of both parents and children. Sessions run weekly for 3 hr within the school setting, during the school term. In the first hour, parent and child sessions run concurrently in separate rooms, with two facilitators in each group. The session curricula for parents included content on setting goals, self-care, communication and relationships, setting limits, problem-solving, and family management to prevent drug and alcohol use. The child

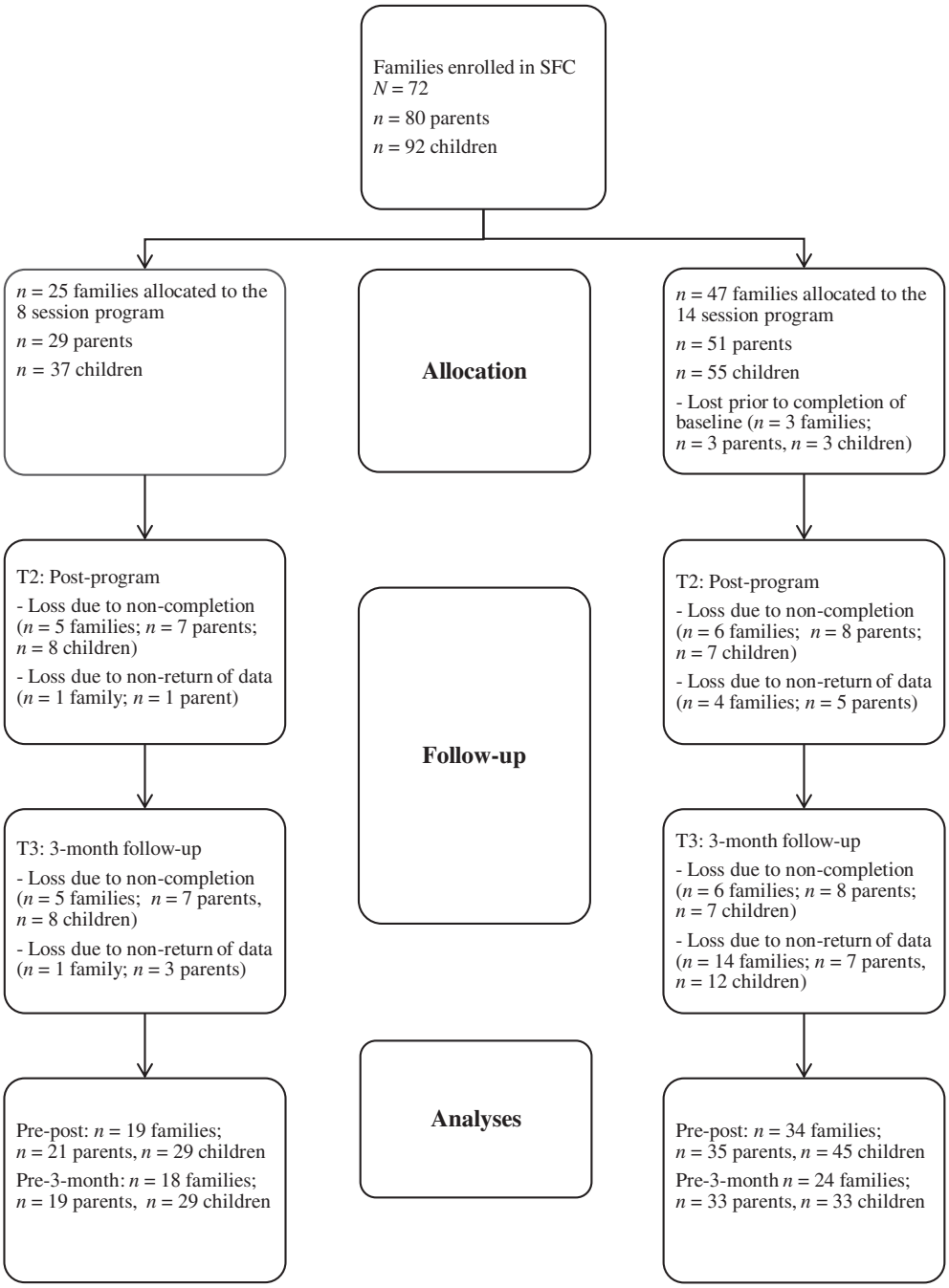

FIGURE 1 Flow diagram of parent, child, and family attrition across SFC programs

TABLE 1 Baseline distribution of parent and child program completers and non-completers across the 8- and 14-session program

	8-Session SFC		14-Session SFC	
Participants	**Completers**	**Non-completers**	**Completers**	**Non-completers**
Parent *n*	22	7	40	8
Age *M* (*SD*)	41.05 (7.28)	40.14 (11.77)	41.00 (8.16)	37.63 (4.98)
Female %	90.90	85.71	80.00	87.50
Child *n*	29	8	45	7
Age *M* (*SD*)	9.31 (1.42)	9.75 (1.28)	9.36 (1.17)	9.29 (1.25)
Female %	48.30	50.00	55.55	14.30

Note. Age missing for three parent completers in the 14-session program ($n = 37$).

session curricula included goals and dreams, communication skills, identifying and coping with feelings, seeking support, problem-solving, handling change, and psychoeducation on drugs, alcohol and healthy lifestyle choices. Parents and children then come together for a structured 45-min parent–child session focused on parent–child interactions, positive play and the practice of skills and family bonding. At the end of each parent–child session, families were provided a meal to support the development of rituals and practices associated with preparing and sharing healthy food.

The adaptation process of SFC involved changing the language, images, and metaphors within the SFP to fit the Australian cultural context, level of education, and use of colloquial language. Primarily, the content and methods remained consistent with the SFP; however, some reward and disciplinary strategies were adjusted to support recent evidence-based treatment guidelines for families who have experienced trauma (e.g., the removal of time-out as a recommended behavioural modification strategy; Siegel & Bryson, 2016). Senior program managers at the community service agency undertook adaptations of the SFC program in collaboration with Kumpfer, Scheier et al. (2018). Adaptation was completed in consultation with the program developer (Professor Karol Kumpfer) and local experts on the development and evaluation of family mental health interventions and prevention science.

Two versions of SFC were piloted; initially, a briefer 8-session version that was suitable for delivery within the length of an Australian Primary School term and an expanded 14-session version more akin to the original SFP program. The 14-session format expanded on the content delivered in the briefer version and incorporated psychoeducation on stress, depression, anxiety, and exploring the influence of a parent's family of origin within parent sessions. During these sessions, children participated in the Tree of Life narrative therapy (Ncube, 2006), which uses the tree as a metaphor to explore self-identity (i.e., dreams and wishes, gratitude's and strengths) and family of origin (e.g., roots of the tree represent family history). As previous pilot studies have reported the positive benefits of incorporating mindfulness-based practice (e.g., the *SFP 10–14 Years* pilot; Duncan, Coatsworth, & Greenberg, 2009), the 14-session SFC variation also included a brief mindfulness exercise at the beginning of the parent and child sessions, using the Smiling Mind® (http://www.smiling mind.com.au) mobile phone application.

If required, childcare was offered by trained volunteer staff for siblings (e.g., siblings that were not 8–12 years of age) during concurrent parent and child sessions. All family members were invited to attend the family meal at the end of each family session. Facilitators were employees of the local community service agency who had a minimum of a bachelor's degree in psychology, nursing, teaching, or social work and received training in the delivery of the SFC program. All facilitators were provided with regular group supervision by a senior family therapist.

2.3 | Measures

2.3.1 | Children's behavioural and emotional problems

Children's emotional and behavioural difficulties were measured through the Strength and Difficulties Questionnaire (SDQ; Goodman, 2001). Parents completed a 25-item inventory that consisted of 5-item subscales assessing child: emotional problems, conduct problems, hyperactivity/inattention, peer-relationship problems, and pro-social behaviour. Individuals responded to a 3-point Likert scale (*not true—certainly true*), indicating the extent to which they endorsed items for their child (e.g., "often loses temper") over the past 6 months. A total difficulties score was generated by summing the four problem subscales. Scores ranged from 0 to 40, where higher scores reflected greater overall difficulty. The parent-reported total difficulties subscale used in the present study demonstrated good internal consistency (T1: $\alpha = 0.82$; T2: $\alpha = 0.86$; T3: $\alpha = 0.86$). Parent-rated total child difficulties scores can be interpreted through the widely used bands: normal (0–13), borderline (14–16), and abnormal (17–40; Goodman, 1997). A self-report version of the SDQ on the same five subscales was administered to children to assess the correlation between parent and child reports. However, the child-report data was treated with caution as the validity of the self-report scale has been based on older youth (11–16 years of age; Goodman, Meltzer, & Bailey, 1998).

2.3.2 | Parental psychological distress

The Kessler 6 (K6; Kessler et al., 2002) mental health screening measure was used to assess parental psychological distress. The K6 is an abbreviated version of the Kessler 10 (K10) and is found to have strong psychometric properties and comparable performance in the screening of *DSM-IV* mood and anxiety disorders (Furukawa, Kessler, Slade, & Andrews, 2003). In the present sample, the K6 demonstrated good internal consistency (T1: $\alpha = 0.91$; T2: $\alpha = 0.89$; T3: $\alpha = 0.90$). The scale comprised six items assessing behavioural, emotional, cognitive, and psychophysiological symptoms over the past 30 days using a 5-point Likert scale ranging from 1 (*none of the time*) to 5 (*all of the time*). Responses were summed together to create a full-scale score ranging from 6 to 30, where higher scores indicated greater psychological distress. Based on validation studies using Australian scoring, a score of 6–18 is indicative of no probable serious mental illness and 19–30 as probable serious mental illness (Kessler et al., 2010).

2.3.3 | Family conflict

The family conflict subscale from the Communities that Care Youth Survey (Arthur, Hawkins, Pollard, Catalano, & Baglioni, 2002) was administered. Children were asked to

respond to three items (*yes–no*) indicating whether they agreed to statements such as "people in my family have serious arguments." The total of these items gave an overall indicator of negative family interactions, fights, and arguments, with a higher score reflecting greater family conflict. In the present sample, the family conflict subscale demonstrated moderate internal consistency (T1: $\alpha = 0.65$; T2: $\alpha = 0.70$; T3: $\alpha = 0.76$).

2.3.4 | Hostile parenting

The hostile parenting scale was adapted from the Longitudinal Study of Australian Children (LSAC; Zubrick, Lucas, Westrupp, & Nicholson, 2014). The measure uses three of the original five-items to assess the frequency of parents' level of negative emotional reactivity and feelings of frustration towards their child in the past 6 months. A 5-point scale was used ranging from 1 (*never/almost never*) to 5 (*always/almost always*), indicating the extent to which they endorsed statements such as "I have lost my temper with my child." Higher scores indicated greater frequency of hostile parenting. The scale was scored calculating the mean of all items. In the present sample, the parental hostility subscale demonstrated good internal consistency (T1: $\alpha = 0.92$; T2: $\alpha = 0.86$; T3: $\alpha = 0.91$).

2.4 | Procedure

This study was approved by the Deakin University's Human Research Ethics Committee (DUHREC; no. 2012-231). After consent from the school principal and teaching staff, families were recruited from seven disadvantaged primary schools in regional Victoria, Australia between 2012 and 2015. The program was first conducted as an 8-session program and after consumer feedback was extended to a 14-session program. The 8-session program was implemented from June 2012 until December 2013, and the 14-session was implemented as of February 2014. Participants were allocated to an 8-session version or a 14-session version of SFC based on their recruitment date and all participants participated in the treatment arm they were allocated to. All children attending the school aged 8–12 years and their primary parents were invited to participate in the program regardless of welfare needs. Children 7 years of age were admitted into the program, on the proviso that they turned 8 years of age before the completion of the program. Parents who expressed an interest in participating in the program completed a screening interview prior to participation. When families had been accepted to participate in the program, they were provided with the Plain Language Statement. After parents provided informed consent, a battery of self-report questionnaires was administered to children and parents, prior to the commencement of the program (T1), post-program (T2), and at approximately 3-months post-intervention (T3). Parents were given a $20.00 food voucher for completing 3-month follow-up measures. Pre- and post-measures were completed in person, and hard copies of follow-up surveys were mailed out to parents with return postage paid envelopes. Children completed surveys during the school period in a private room with a researcher present. The questionnaires took approximately 15–25 min to complete.

2.5 | Data analysis

Data were analysed using SPSS version 24 (IBM Corp., Armonk, NY). The primary method of analysis for hypotheses was paired-sample *t* tests and one-way repeated measures analysis of variances (ANOVAs) with a mixed between-within subjects design, comparing 8-session and 14-session program completers at pre-, post-, and 3-month follow-up. A total sample size of 28 participants was required to allow detection of a medium effect size of Cohen's $f = 0.25$ on a repeated measure, within-between interaction analysis, with a power of 0.80, α of 0.05, and assuming sphericity.

To examine intervention mechanisms affecting PMH, change variables were created for parent-rated total child difficulties, level of parental psychological distress, family conflict, and parental hostility. Change variables were created using the following formula: change variable = T1 score − TX score, where X = T2 or T3 to indicate pre–post and pre–3-month follow-up change score. The greater the change score, the larger the symptom reduction. Backward stepwise regression analyses were used to examine whether changes in the level of parent psychological distress was associated with changes in the reported level of family conflict, hostile parenting, and parent-rated total child difficulties. This method of analysis was used to identify and optimise the best model explaining reductions in psychological distress from the predictor variables.

The primary analysis was undertaken on program completers. Of program completers, 100% completed baseline data, 90.3% of parents and 100% of children completed post-intervention data, and 83.9% of parents and 83.8% of children completed 3-month follow-up data. Preliminary analyses examined missing data across parents and children at pre-, post-, and at 3-month follow-up for program completers. Data for parent and child were found to be missing completely at random (Little missing completely at random (MCAR) test, $p > 0.05$) at pre-, post-, and 3-month follow-up. Given the small sample sizes and the completely random nature of missing values, cases were excluded from analyses pairwise.

3 | RESULTS

3.1 | Preliminary analyses and assumption testing

Examination of bivariate scatterplots and expected normal probability plots indicated that assumptions of normality, homoscedasticity, and linearity were generally satisfied.

TABLE 2 Descriptive statistics for key variables at three time-points (for 8- and 14-session program)

	Baseline (pre)				Post				3-Month follow-up			
	8-Session		14-Session		8-Session		14-Session		8-Session		14-Session	
Outcomes	*n*	Mean (*SD*)	*n*	Mean (*SD*)	*n*	Mean (*SD*)	*n*	Mean (*SD*)	*n*	Mean (*SD*)	*n*	Mean (*SD*)
Parental psychological distress—PR	21	11.48 (4.77)	40	12.43 (5.16)	20	11.75 (4.58)	35	11.00 (4.58)	19	11.00 (5.44)	32	10.81 (4.03)
Total child difficulties—PR	20	13.50 (8.42)	39	15.77 (7.59)	21	11.19 (6.19)	34	13.32 (7.42)	17	9.29 (6.49)	29	10.52 (6.50)
Total child difficulties—CR	25	14.36 (8.04)	45	15.02 (6.75)	26	12.69 (8.20)	44	14.43 (6.76)	28	10.64 (6.99)	32	14.16 (6.76)
Family conflict—CR	29	4.62 (1.21)	44	4.59 (1.13)	29	4.31 (1.20)	45	4.24 (1.19)	29	3.86 (1.13)	31	4.23 (1.26)
Hostile parenting—PR	21	5.40 (2.13)	39	4.67 (2.30)	20	4.65 (1.77)	35	3.88 (1.86)	19	3.75 (1.95)	33	3.15 (1.40)

Note. CR: child rated; PR: parent rated.

However, parental psychological distress was severely skewed at baseline and follow-up. Hostile parenting was also skewed at follow-up. Independent *t* tests revealed no significant difference in program completers' level of family conflict, parental psychological distress, parental hostility, and child-rated and parent-rated emotional and behavioural difficulties of the child for participants in the 8 vs. 14-session SFC, at baseline. A Mann–Whitney test further indicated that there was no significant difference in parental psychological distress and hostile parenting for participants in the 8- and 14-session program at baseline. Given the skew in parental psychological distress and hostility, primary analyses were also run in Stata® 14 (StataCorp LP, College Station, TX) using negative binomial regression. Results were found to be robust, suggesting that the data distribution did not overly influence findings.

Descriptive statistics for completers, including means and standard deviations for key continuous variables, are reported in Table 2. Pearson's correlations for key continuous variables at baseline were analysed across families who completed the SFC program (Table 3). At baseline, there was a positive correlation between parent-reported total child difficulties and parental hostility ($r = 0.57$, $p < 0.001$). Whereas, child-reported total child difficulties were significantly correlated with family conflict at baseline ($r = 0.36$, $p = 0.008$). The correlation between parent-reported and child-reported child difficulties was a non-significant positive correlation at baseline ($r = 0.27$, $p = 0.054$).

3.2 | Parent-rated child behaviour problems

Paired-samples *t* tests established that there was a significant reduction in scores from pre- to post-intervention ($M\Delta = 2.50$, $SD = 5.02$; $t[51] = 3.59$, $p = 0.001$) and from pre- to 3-month follow-up ($M\Delta = 5.12$, $SD = 4.38$; $t[42] = 7.66$, $p < 0.001$). A one-way repeated measure with a mixed between-within subjects design was conducted to investigate changes in parent-reported total child difficulties at pre-, post-, and 3-month follow-up, across 8- and 14-session SFC groups (Table 4). No significant interaction effect was found for Time × SFC groups, Wilks' $\lambda = 0.99$, $F(2, 36) = 0.19$, $p = 0.83$, $\eta^2 = 0.01$. There was a significant main effect of time on total child difficulties, Wilks' $\lambda = 0.45$, $F(2, 36) = 22.30$, $p < 0.001$, $\eta^2 = 0.55$.

3.3 | Parent psychological distress

Paired-samples *t* tests found a significant reduction in scores pre–post-intervention ($M\Delta = 1.19$, $SD = 3.66$; $t[53] = 2.38$, $p = 0.021$) and from pre- to 3-month follow-up ($M\Delta = 1.46$, $SD = 3.99$; $t[49] = 2.59$, $p = 0.013$). A one-way repeated measure with a mixed between-within subjects design was conducted to determine changes in parental psychological distress at pre-, post-, and at 3-month follow-up, across 8- and 14-session SFC groups (Table 4). No significant interaction effect was found for time across SFC groups, Wilks' $\lambda = 0.99$, $F(2, 42) = 0.21$, $p = 0.81$, $\eta^2 = 0.01$. There was no significant main effect of time on parental psychological distress, Wilks' $\lambda = 0.876$, $F(2, 42) = 2.98$, $p = 0.06$, $\eta^2 = 0.12$.

3.4 | Predictors of reduction in parental psychological distress

Backward stepwise regression analyses were conducted to assess whether reductions in family conflict, parental hostility, and children's behavioural and emotional difficulties

TABLE 3 Pearson's correlations for key variables at baseline

Measure	1	2	3	4	5
1. Parental psychological distress—PR ($n = 54$)	1	0.41**	−0.10	0.18	0.25
2. Total child difficulties—PR ($n = 55$)		1	0.27	0.10	0.57***
3. Total child difficulties—CR ($n = 51$)			1	0.36**	0.12
4. Family conflict—CR ($n = 54$)				1	0.14
5. Hostile parenting—PR ($n = 53$)					1

Note. CR: child rated; PR: parent rated.
**$p < 0.01$, ***$p < 0.001$.

TABLE 4 Changes in total child difficulties and parental psychological distress

	n	Pre	Post	Follow-up		
Parent and child outcomes		*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*F* (*df*)	η^2
Total child difficulties[a]						
8-Session SFC	15	13.13 (8.89)	10.47 (6.56)	8.67 (6.63)	6.02(2, 13)*	0.48
14-Session SFC	24	15.54 (7.87)	12.71 (7.27)	10.29 (6.91)	22.28(2, 22)**	0.67
Treatment × Time					0.19(2,36)	0.01
Parental psychological distress[a]						
8-Session SFC	17	11.53 (4.64)	10.59 (3.71)	10.65 (4.90)	0.71(2, 15)	0.09
14-Session SFC	28	12.61 (5.22)	11.04 (4.49)	11.00 (4.15)	2.97(2, 26)	0.19
Treatment × Time					0.21(2, 42)	0.01

[a] Parent rated.
*$p < 0.05$, **$p < 0.01$.

predicted reductions in parental psychological distress from baseline to follow-up. In the first analysis, change in predictor variables from pre- to post-program were entered. All models were non-significant indicating that the predictor variables did not explain the reductions in parental psychological distress from baseline to post-program. In the second analysis, change in predictor variables from baseline to 3-month follow-up were entered (Table 5). In Step 1, all predictors were entered resulting in a non-significant model ($R^2 = 0.19$, $F[3, 29] = 2.32$, $p = 0.096$). Parental hostility was removed in Step 2, resulting in a significant model ($R^2 = 0.19$, $F[2, 30] = 3.55$, $p = 0.041$). Reductions in child emotional and behavioural problems predicted 19% of reductions in parental psychological distress, although the model did not explain additional variance ($\Delta R^2 = 0.00$, $F\Delta[1, 29] = 0.08$, $p = 0.774$). In Step 3, family conflict was excluded, revealing that child behavioural and emotional problems significantly predicted 18% of reductions in parental distress ($R^2 = 0.18$, $F[1, 31] = 6.66$, $p = 0.015$; $\Delta R^2 = -0.01$, $F\Delta[1, 30] = 0.53$, $p = 0.471$).

4 | DISCUSSION

This is the first study to evaluate the Australian adaptation of the SFP (herein referred to as SFC). This pilot study assessed pre-, post-, and 3-month follow-up data to determine whether the program supported parent and CMH improvements. Overall, the findings suggested that there were significant improvements in parent and child outcomes after completing the program, which were sustained at follow-up.

As hypothesised, participation in SFC was associated with a reduction in child emotional and behavioural problems post-program and at 3-months follow-up, in line with moderate effect sizes from U.S. SFP trials (Kumpfer, Alvarado, Tait et al., 2007; Kumpfer, Whiteside et al., 2010; Spoth et al., 2007). These results are consistent with the extensive body of research supporting the effectiveness of the SFP (Kumpfer, Magalhães et al., 2016) and family-based approaches to reduce child emotional and behavioural problems (Carr, 2018).

In addition, results were also indicative of a significant reduction in parental psychological distress post-program and at follow-up; however, these effects did not maintain significance when comparing the 8- and 14-session SFC. These findings reinforce the potential benefits of family-based interventions targeting CMH in improving PMH and wellbeing (Bertino et al., 2013; Cluxton-Keller et al., 2015; Poole et al., 2018), though further analysis is necessary to determine whether this extends to clinical levels of depression and anxiety in parents.

Contradicting hypotheses, the improvement in parent psychological distress and child emotional and behavioural difficulties did not significantly differ when comparing parent and child outcomes across the 8- and 14-session SFC program. This suggests that the additional content in the 14-session SFC did not provide significantly more benefit than the 8-session curriculum. As a community-based study, SFC targeted disadvantaged schools and invited all families with children aged 8–12 years to participate. Given this, it is likely that children participating in the SFC had a lower level of risk factors than families in targeted interventions (e.g., families with parents with substance use disorders) and

TABLE 5 Backward stepwise regression assessing reductions in child difficulties, family conflict, and parental hostility as predictors of parental psychological distress

Predictors[a] and steps	*B*	*SE B*	*β*	*t*	sr^2
Step 1					
Parental hostility	−0.10	0.35	−0.05	−0.29	0.00
Total child difficulties	0.42	0.16	0.46	2.58*	0.18
Family conflict	0.41	0.57	0.13	0.73	0.01
Step 2					
Total child difficulties	0.40	0.15	0.45	2.66*	0.19
Family conflict	0.41	0.56	0.12	0.73	0.01
Step 3					
Total child difficulties	0.38	0.15	0.42	2.58*	0.18

Note. $N = 33$ families.
[a] Predictor variables refer to change from baseline to follow-up.
*$p < 0.05$.

may not have required a longer treatment duration (Kumpfer, Scheier et al., 2018). This was reflected in parent and child baseline scores that were, on average, below clinical thresholds. The average baseline of child emotional and behavioural difficulties (as measured on the SDQ; Goodman, 2001) was in the "borderline" classification, suggesting the average child participant likely had problematic symptoms of hyperactivity, conduct, emotional, or peer problems, although a clinical diagnosis was not necessarily warranted. The average parent who completed the SFC reported levels of psychological distress at baseline that were not indicative of mental illness (Kessler et al., 2010). Hence, families were able to benefit from a briefer treatment period, a similar treatment dosage (i.e., seven sessions) found to be effective in reducing risk factors and building protective factors in universal child and family populations (Kumpfer, Magalhães et al., 2016).

In partial support of our third hypothesis, reductions in parental psychological distress at follow-up were found to be predicted in part by reductions in children's emotional and behavioural difficulties, at follow-up. However, reductions in parental hostility and family conflict pre–post and pre-follow-up did not significantly contribute to reduced psychological distress. This suggests that there may be some effect of CMH recovery on parental psychological distress, where positive benefits in PMH may be supported indirectly when successful aid is provided to support child emotional and behavioural problems. The positive correlation between reduction in parental psychological distress and CMH problems is consistent with previous research reporting a relationship between parental stress and CMH, where parents of children with behavioural difficulties have been found to exhibit reduced wellbeing (Early et al., 2002). In addition, results align with the interconnected nature of mental health and wellbeing of family members posited in family systems theory and transactional models (Gross et al., 2008; Poole et al., 2018; Shore et al., 2018). Notably, this association was only evident for reductions in the child emotional and behavioural difficulties at follow-up and not pre–post. Although the present results are indicative, it is possible that reductions in total child difficulties across time may also be associated with other unmeasured mitigating factors that may also contribute to PMH, such as increased family social supports.

As a pilot, this study had several methodological limitations. First, the evaluation did not include a no-treatment control group, and as such we cannot confidently attribute the observed improvements to be treatment effects. However, the observed effect sizes are of a magnitude that is similar to those reported in previous controlled trials where improvements were significantly greater relative to control (e.g., Spoth et al., 2007). Second, while the parent-report measures are widely published and satisfy validity criteria, parent-reports may be influenced by parent mood (Chi & Hinshaw, 2002). As a community-based evaluation, there was also no exclusion of children and parents with intellectual disability, personality disorders, and severe mental illness, which also may have weakened the effect size by reducing the reliability of self-report data. Third, this study investigated the effect of treatment dosage (i.e., completion of the 14 vs. 8-session program) on program outcomes. However, program completers included families that participated in more than 50% of sessions. We were unable to analyse possible differential outcomes for participants with partial vs. 100% attendance, due to the small sample size. Finally, the allocation to the 8- or 14-session program was not randomised. Yet, the 14-session program was delivered after the 8-session SFC and failure to demonstrate an advantage remains even after factoring in increased facilitator experience.

There were also limitations that related to the sampling characteristics of this community trial. Despite the sample being derived from disadvantaged schools, data on parental psychological distress was skewed towards lower scores at baseline. People who did not complete the program were also more likely to have higher levels of parental psychological distress. Given this, we have a limited understanding of how effective SFC may be for parents with more severe levels of psychological distress. This study has the benefit of representing clients that are under-represented in service research and high on indicators of disadvantage. However, findings cannot be generalised to clinical populations and children referred to clinical services where the presentations are more severe. Similarly, the conclusion of similar efficacy in the 8- and 14-session version cannot be generalised beyond implementation as a prevention program to clinical populations, as the treatment dosage required greatly depends on the severity of symptomology (Kumpfer, Scheier et al., 2018).

The SFC is a highly structured program and requires a high level of coordination and support staff (Kumpfer, Magalhães et al., 2016). Difficulties in recruiting participants, securing funding, and high staff turnover can lead to challenges in program implementation. These challenges can potentially compromise the fidelity and effectiveness of the intervention (Kumpfer, Scheier et al., 2018). Engaging in international training and community-university partnerships can support student training and program fidelity and thereby enhance the capacity for sustained implementation (Spoth et al., 2007). In Australia, a partnership approach with the local university, community agency, and schools was integral to participant recruitment, enabling the successful implementation of SFC.

5 | CONCLUSIONS

The present study found that the Australian adapted SFC was feasible for recruiting disadvantaged families and was associated with mental health improvements for both parent and child participants. The positive outcomes of this pilot

study suggest that the SFC is a feasible variant of the SFP for practitioners to utilise with Australian families. Results indicated that an 8-session version of the SFC had similar outcomes to a 14-session format, recommending the 8-session version as an efficient option. The CMH and PMH were improved in the context of a selective disadvantaged Australian primary school sample, signalling an important target for future interventions. Overall, the results of the SFC pilot are promising and provide support for further evaluation and dissemination of the SFC program in Australia.

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ORCID

Michele Burn https://orcid.org/0000-0002-8597-0529
Andrew Lewis https://orcid.org/0000-0002-2519-7976
John W. Toumbourou https://orcid.org/0000-0002-8431-3762

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