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**Innovation, Engagement, and the Evaluation of a Parenting Intervention for  
Improving Sibling Relationships**

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## **Abstract**

Siblings play an integral role in shaping each other's psychosocial development. Sibling relationships marked by positive, prosocial interactions provide an ideal platform for individuals to acquire essential life skills that will benefit them throughout life. On the other hand, early sibling relationships marked by elevated levels of hostility and conflict can have serious long-term, negative consequences. Of all the factors that influence the sibling relationship, few are as important as parents. Currently, there are no parenting programs that have been co-constructed with parents in the community to help them with improving their children's sibling relationships.

This dissertation seeks to make an important contribution to literature by taking on the challenge of developing and evaluating a parenting program for improving sibling relationships. The feature of this body of work is the evaluation of a version of the Triple P-Positive Parenting Program, tailored to the issue of sibling relationships. However, the goal of this dissertation extends beyond an evaluation of program efficacy. This dissertation also examines the process of innovation and engagement throughout the research process. The thesis seeks to demonstrate that innovation and engagement in evidence-based parenting research enhance the capacity to design interventions that fit with community needs and increase the impact of research.

Chapter One provides a general introduction to the current body of work. The chapter makes the case for why sibling relationships are worth studying, why parenting programs are a useful tool to improve sibling relationships, and why engaging parents throughout the research process is important. The chapter also articulates an innovation engagement framework that describes the mechanisms associated with linking ideas to impact. Chapter Two provides a model of consumer-engaged program development. Using sibling conflict as a case study, the model articulates how evidence-based parenting interventions can be developed in consultation with different members of the community, resulting in benefits to children, families, and the community.

Chapter Three presents the outcome data from a national survey of parents on the topic of sibling relationships. The survey bridged an important gap in the literature by incorporating the parent voice as an initial step in designing an intervention for improving sibling relationships. A total of 409 Australian parents completed an online survey relating to their views on sibling behaviours and what, if any, help they desire in dealing with the issue. Parents predominantly required help with conflictual behaviours and attributed the causes of sibling conflict to their child's internal traits, but expressed strong desire for assistance with managing behavioural and verbal problems and reported high levels of acceptability for positive, rather than punitive, parenting strategies. Parents showed a clear preference for parenting interventions delivered in brief, easy to access formats.

The findings from the survey were integrated with existing theory and empirical evidence to inform the decision to adapt a version of the Triple P-Positive Parenting Program for the purpose of improving sibling relationships. Chapter Four presents the rationale to adapt and tailor the Triple P brief discussion group ‘Managing Fighting and Aggression’, outlines the content of the intervention, and describes why innovation in the form of program adaptation, rather than creation, is a potentially valuable idea.

Chapter Five presents the outcome data from the foundational randomised controlled trial of the Triple P brief discussion group for improving sibling relationships. A total of 66 parents were randomised to receive either the intervention or waitlist control condition. The results revealed a significant improvement in sibling relationships for the intervention group at 6-week post-intervention compared to the waitlist group. Significant differences between groups were found also for the extent to which parents perceived sibling agonism and lack of warmth to be a problem. No other intervention effects were found. The results are interpreted to provide preliminary support for the utility of a brief version of Triple P in improving sibling relationships. Further research is needed to replicate and extend these findings to provide the basis for broader dissemination of the intervention.

Chapter Six explores how engaging the community through the media may serve to positively influence community understanding of, and attitudes towards, sibling conflict. Using a national television broadcast, the goal was to emphasise the importance of parents positively intervening in their children’s sibling relationships. Results from 338 participants who responded to an online questionnaire indicated that viewing the television program resulted in a shift of attitude towards sibling conflict. Of those who experienced a change of view, 85% reported that the issue is more important than previously thought. The most compelling finding was that people who viewed the program were more likely to think that parents should positively intervene with their children’s sibling conflict compared to those who did not view the program.

The dissertation concludes in Chapter Seven whereby a summary of the overarching findings and implications of the body of work are discussed. Possible future research priorities and opportunities facing the field also are presented. This includes the need for expanding the competencies of graduate students, the role of commercial partners in developing evidence-based interventions, and novel applications of behavioural science to major problems facing communities around the world.

In sum, the goal of this dissertation is to demonstrate how the development of a parenting program for improving sibling relationships can improve the health and wellbeing of families and communities. This dissertation also illustrates the advantages of innovation and engagement throughout the research process when research impact is a valued outcome.

**Declaration by author**

This thesis is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly-authored works that I have included in my thesis.

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## **Publications during candidature**

### ***Peer-reviewed journal articles:***

- Pickering, J. A., Sanders, M. R., Hong, J., Penman, N. A., & Dodgson, M. (2015). Utilising the media to engage the community in behavioural science research. *Mass Communication and Society*. Manuscript submitted for publication.
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**Conflict of Interest Declaration**

John Pickering is a student and employee of The Parenting and Family Support Centre within The University of Queensland (UQ). UQ owns The Triple P-Positive Parenting Program. The University through its technology transfer company, UniQuest Pty Ltd, has licensed Triple P International Pty Ltd to publish and disseminate the program worldwide. Royalties stemming from published Triple P resources are distributed to the University and contributory authors. John Pickering is not an author of any Triple P resources, including the intervention evaluated in this dissertation, and is not a financial recipient of program dissemination.

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**List of Abbreviations**

<i>Abbreviation</i>	<i>Meaning</i>
ABC	Australian Broadcasting Corporation
ANOVA	Analysis of Variance
ANZCTR	Australia and New Zealand Clinical Trials Registry
CAPES	Child Adjustment and Parent Efficacy Scale
DNA	Deoxyribonucleic Acid
FBQ	Family Background Questionnaire
HMCC	How Do You Manage Children's Conflicts Questionnaire
IP	Intellectual Property
<i>M</i>	Mean
MANCOVA	Multivariate Analysis of Covariance
MANOVA	Multivariate Analysis of Variance
MCAR	Missing Completely At Random
MFWSB	More Fun with Sisters and Brothers Program
NHMRC	National Health and Medical Research Council
PAFAS	Parenting and Family Adjustment Scales
PEPC-SRQ	Parental Expectations and Perceptions of Children's Sibling Relationships Questionnaire
PFSC	Parenting and Family Support Centre
RCT	Randomised Controlled Trial
<i>SD</i>	Standard Deviation
SIBS	Siblings Are Special
TAFE	Technical and Further Education
Triple P	Triple P-Positive Parenting Program

*Dear Mr Pickering,*

*I wanted to thank you for appearing on Insight last week, and giving some legitimacy to the concept of sibling abuse.*

*Sibling abuse is the most serious trauma I have ever experienced.*

*I was married to a violent, high-functioning alcoholic who was a pathological liar and compulsive gambler for 20 years and not even all of that horror (police interventions, DVO'S, hospitalisation) can compare to the trauma that I have suffered at the hands of my sister.*

*I no longer refer to her in real life as my sister, but have used this title in this email for ease of communication. Even to verbalize the word "sister" in regards to any familial relationship to me, makes me nauseous.*

*I look back now and really do not know how I survived. I do know that I never provoked her, stood up for myself or fought back. I tried at all times, to make myself as invisible and inconsequential as I possibly could. My proudest achievement is to have raised children who love each other so deeply and have a sisterly bond so profound that nothing will ever break it.*

*I know that it is what the parent does or doesn't do, what they chose to acknowledge and change or chose to ignore and cultivate that makes all the difference.*

—Australian Woman  
Email communication to the author of this dissertation  
April 2015

Permission obtained to reproduce this correspondence

## **Chapter 1**

### General Introduction

---

#### **Précis**

This chapter introduces the body of work comprising this dissertation. The goal of this dissertation is to bridge a gap in the literature by developing and testing a parenting intervention for improving sibling relationships. There are few evidence-based parenting programs specifically designed to help parents deal with fighting and aggression among their children. There are no programs that have been developed in systematic consultation with parents in the community—a key consideration for increasing the reach and impact of programs. Further, there are very few documented case examples in the literature examining the role of innovation and engagement in enhancing the impact of behavioural sciences research. This dissertation aims to contribute important new knowledge though addressing these gaps in the field.

A guiding principle of this thesis is that an empirically supported intervention does not necessarily translate to a highly utilised intervention that makes a genuine impact in the community. Hence, an investigation into the efficacy of an intervention would benefit from a concurrent exploration of the mechanisms that underscore community receptivity to that intervention. For the current thesis, it was considered necessary not only to conduct a randomised trial of a clinical psychological intervention, but just as importantly, to study the factors that might make the program more likely to be used in the community. In this way, the focal point of this thesis is not the clinical outcome data per se, but the extent to which the processes that drive innovation and increase the impact of the intervention were considered.

Firstly, however, it is important to frame the narrative of this thesis. Namely, why sibling relationships are important, why parenting programs also are important, why engagement of consumers and end users matters, and what each specific component of the thesis will address.

#### **Why study sibling relationships?**

A person's relationship with their sibling is likely to be the longest, and potentially most influential, relationship that they will have across the lifespan. For better or worse, siblings impact one another in many different ways. One way of understanding the sibling relationship is that children use time with their sibling to practice skills and behaviours learned elsewhere. In interacting with each other, siblings can reinforce or discourage learned behaviours and skills, with both positive and negative implications (Kramer, 2010; Parke & Buriel, 2006). Sibling interactions can promote prosocial behaviours such as helping each other learn how to share and take-turns (White, Ensor, Marks, Jacobs, & Hughes, 2014), to develop social reasoning (Dunn, 2002), to enhance emotional and cognitive development (Campione-Barr, Greer, & Kruse, 2013; Prime,

Pauker, Plamondon, Perlman, & Jenkins, 2014), to safeguard against internalising problems, and to increase levels of self-regulation in adolescence (Padilla-Walker, Harper, & Jensen, 2010). In this way, siblings are developmentally advantageous and provide an important interactional context to helping individuals acquire crucial life skills.

Conversely, the sibling relationship has the capacity to be a training ground for aggression (Patterson, 1986). Sibling relationships marked by elevated levels of conflict and hostility can result in a myriad of troublesome longer term consequences including conduct problems, delinquent behaviour (Bank, Patterson, & Reid, 1996; Criss & Shaw, 2005), and other externalising and internalising problems such as depression, anxiety, and self-harm (Buist, Deković, & Prinzie, 2013; Kim, McHale, Crouter, & Osgood, 2007; Tucker, Finkelhor, Turner, & Shattuck, 2013). Bowes, Wolke, Joinson, Lereya, and Lewis (2014) demonstrated that being bullied by a sibling doubles the risk of depression and self-harm at 18 years of age. Wayward or dysfunctional sibling relationships, therefore, can serve as a precursor to individuals setting sail on a problematic developmental trajectory.

In sum, the sibling relationship has the capacity to exert a significant degree of influence over individuals' interpersonal, social, emotional, and behavioural development. Hence, developing innovative strategies and interventions to promote positive, rather than negative, sibling relationships is an idea worth pursuing. When contextualised this way, the purpose of the current study is to not only reduce conflict in problematic sibling relationships, but to also promote positive developmental relationships among siblings, even in the absence of high levels of conflict.

### **The causes of sibling conflict – the role of parents**

Previous research has examined the variables that are implicated in the onset and maintenance of sibling conflict. Early studies focused on sibling interactional patterns, typically between sibling pairs, to help delineate the etiological variables implicated in sibling conflict. Pepler, Abramovitch and Corter (1981) observed 28 pairs of same-sex siblings and 28 pairs of mixed-sex siblings in their homes at multiple time points. The study revealed that older children initiated prosocial and agonistic behaviour more frequently than their younger sibling, whereas younger children displayed higher levels of imitation behaviours. Moreover, the pattern of interaction remained relatively stable across the observation intervals and gender of sibling had little effect on sibling interactions. Consistent with this finding, Brody, Stoneman, MacKinnon and MacKinnon (1985) characterised seven operational roles that siblings can adopt (e.g., teacher, learner, manager, managee). They observed sibling pairs in their homes to determine how age influenced the type of role siblings take on. Whereas younger siblings assumed compliance type roles (e.g., manage, trainee), older siblings were more likely to assume leader roles (e.g., manager, trainer).

Age and gender of siblings may influence the onset of sibling conflict in various ways. For example, Snyder, Bank and Burraston (2005) examined the extent to which exposure to the deviant activities and associates of an older brother during childhood impacted younger siblings' risk for a variety of serious behaviour problems in adolescence. The study revealed that sibling conflict, older brothers' association with deviant peers, and siblings' co-participation in deviant activities combine in a cumulative and synergistic fashion to increase risk for younger siblings. Of particular interest to the current dissertation, the Snyder et al. study also showed that sibling influence on antisocial development is not only stronger for siblings who are closer in age, but also that ineffective parenting facilitated younger siblings' exposure to their older brothers' deviant peers and activities and subsequent development of antisocial behaviour.

Children's development stage, their siblings' age, birth order, sibling relationship quality, and parents' intervention into their children's conflict are all likely to influence levels of sibling conflict. To examine the relationship among these variables, Recchia and Howe (2009) examined the conflict patterns of 62 sibling dyads aged 6- to 8-years. Siblings were asked to discuss one reoccurring conflict alone (dyadic negotiation) and a 2nd conflict with their primary parental caregiver (triadic negotiation). Each of these discussions were coded for children's conflict strategies, the outcomes of the conflict, and caregiver interventions. The results from the study showed that age was associated with siblings' constructive strategies, as such that conflict resolution strategies become more sophisticated with age. Interestingly, when age was controlled, younger siblings tended to refer more frequently to their own perspective. The role of parents was also found to be important, especially when sibling relationship quality was high. The extent to which parents' possessed a future orientation in their discussions with their children was positively associated with children's own sense of functional, future orientation relationship quality was high. The main conclusion to emerge from the study was the utility of considering parental involvement in sibling conflict resolution strategies, especially as they interplay with other affective and developmental correlates of sibling conflict strategies.

The findings from Recchia and Howe (2009) map neatly onto the view that irrespective of the characteristics of the sibling relationship (e.g., birth order, age gap, gender constellation), parents have a significant influence on sibling relationships (Dunn, 1983, Kramer, 2004). Research demonstrates that parents regard sibling conflict, especially among younger children, as a highly prevalent behavioural problem in their families and an issue they are eager to seek assistance with (Brody & Stoneman, 1987; Kramer, 2004; Pickering & Sanders, 2015b; Ralph et al., 2003). Howe, Aquan-Assee, and Bukowski (2001) examined the importance of mothers in influencing sibling relations to explore the extent to which mothers' attentiveness and responsivity impacted sibling behaviour. The researchers found that even when not physically present in the room, the style of

maternal interaction played a powerful role in determining the quality of sibling-directed behaviour. Specifically, the greater attentive-responsiveness and active engagement the mother displayed when present, the less rivalry exhibited by the older sibling when alone with the younger sibling.

Within the context of sibling relationships, parents may provide an invaluable contribution to their children's reasoning and perspective-taking when they intervene in their children's fights (Perlman & Ross, 1997). Children also model their parents' conflict style (Pike, Coldwell, & Dunn, 2005; Brody, 1998). Rigid or controlling parenting that discourages discussion and negotiation may be detrimental to children's emerging sense of autonomy and provide limited opportunity for children to develop important social and cognitive skills. Hence, interventions focused on training parents to teach social skills to young siblings in the home would not only promote positive, adaptive behaviour, but would capitalise on the powerful socialisation effects of parents and siblings.

Snyder et al. (2005) noted that any preventive effort to address sibling conflict should focus on the sibling relationship relatively early in development. They also noted that sibling-based interventions provide a "two for one" modality of service delivery, serving as a simultaneous clinical intervention for an older sibling with aggression problems, and as a preventive intervention for the at-risk younger sibling. Adding to this, Kramer (2010) points out that emphasis should be placed on finding solutions that enhance positive interactions among siblings and avoid an exclusive focus on remedying conflictual interactions. Previous research similarly demonstrates that interventions targeting sibling conflict ought to be made available early on in development to mitigate potentially harmful long-term effects (Garcia, Shaw, Winslow, & Yaggi, 2000; McHale, Updegraff, Tucker, & Crouter, 2000; Snyder, Bank, & Burraston, 2005; Tucker et al., 2013). Thus, an intervention that targets children earlier in their development trajectories, that focuses on building positive capacity across all children (not just those in conflict), and that utilises the most important resource children have—their parent/s—has considerable merit.

### **Why a parenting program?**

Decades of experimental research have clearly shown that the way parents raise their children has a significant impact on many aspects of child development, including sibling relationships (Barlow, Coren, & Stewart-Brown, 2002; Heckman, 2008; Ross & Lazinski, 2014). An iconic researcher in the field of sibling relationships, Judy Dunn (1983), argued the role of parents is perhaps the most important consideration to understanding the development and maintenance of the sibling relationship. However, understanding that parents play a role in sibling relationships is one thing, making the case for the development of a parenting program to address the issue is another.

Kramer (2010) provides an important narrative underpinning the rationale for parenting programs in managing sibling relationships. She argues that if the goal is to help children establish



relationships that contain higher levels of positive behaviours, it is necessary to be intentional in efforts to help children develop the necessary social and emotional competencies they need.

There has been a proliferation of evidence-based parenting programs in recent times (see Collins & Fetsch, 2012). The goal of parenting programs is to provide parents with the tools and strategies they require to enhance their children's developmental prospects (Sanders, 2012). This means providing parents with evidence-based strategies that maximise children's positive or prosocial developmental outcomes, rather than focusing too heavily on reducing problems. However, despite known benefits, there is a relative paucity of programs available that explicitly target the issue of sibling relationships. This relative lack of parenting programs for managing sibling relationships has, ironically, coincided with an increasing understanding of the potential dangers of early sibling hostility and aggression. For example, Tucker et al. (2013) published the results of a definitive study linking early sibling aggression to a host of long-term, problematic outcomes across children's and adolescents' mental health. In their concluding recommendations, the authors made the call for parenting programs, such as the Triple P-Positive Parenting Program ("Triple P"), to innovate strategies for dealing with sibling aggression. The authors published this call to action in the most-cited journal in the field of paediatrics. Adding to this, and in the same journal, Bowes et al. (2014) called for interventions to be developed and evaluated that target sibling bullying from an early age.

Triple P is a system of parenting interventions that provides a potentially useful framework for addressing the issue of sibling conflict. Triple P draws heavily on social learning theory and principles of behavioral and cognitive change shown to be effective in reducing problem behaviors in children and adolescents (Dretzke et al. 2009, Serketich & Dumas, 1996, Kazdin & Blase, 2011). The aim of Triple P is to increase parents' confidence, skills, and knowledge about raising children; to be more positive in their daily interactions with children; and to help place children on a developmentally advantageous trajectory (Sanders, 2012). The program targets children at five different developmental stages: infants, toddlers, pre-schoolers, primary schoolers and teenagers. Programs vary from being very broad (targeting an entire population) to quite narrow (targeting only vulnerable high-risk children or parents). Triple P incorporates five levels of intervention spanning universal media messages for all parents (level 1), low intensity large group (level 2), topic-specific parent discussion groups and individual programs (level 3), intensive groups and individual programs (level 4), and more intense offerings for high-risk or vulnerable parents (Level 5).

The rationale for Triple P's multi-level strategy is that there are differing levels of dysfunction and behavioural disturbance in children and adolescents, and parents have different needs and preferences regarding the type, intensity and mode of assistance they may require. The multilevel

approach of Triple P follows the principle of selecting the ‘minimally sufficient’ intervention as a guiding principle to serving the needs of parents in order to maximise efficiency, contain costs, avoid over-servicing, and ensure that the program becomes widely available to parents in the community. The broad spectrum of programs and delivery modalities inherent to Triple P provides a useful platform for designing an intervention to target sibling conflict that can occur across a spectrum of increasing severity and across multiple family types. The Triple P model enables intervention developers to accommodate a broad set of “targets” for intervention that are sensitive to the differing levels of dysfunction and behavioural disturbance among siblings, and parents’ own needs and preferences in terms of the specific skills and strategies they wish to use. However, there is currently no version of Triple P that specifically target sibling relationships.

This dissertation heed the call to develop programs with a focus on sibling relationships. However, it is necessary for intervention developers to give considered thought to the process of designing and developing programs that best fit the target population.

### **Rationale for engaging parents in the development of programs**

For some parenting programs, such as Triple P, the overarching goal is to improve parenting practices at a whole-of-population level (Sanders, 2012). Rather the focus on individual cases, the goal is to reduce prevalence rates of children’s social, emotional, and behavioural problems across entire communities. To achieve this, accessing parenting programs needs to become socially normative and a routine part of the child rearing experience. Parenting programs are more likely to be accepted if they avoid stigma, are seen as relevant and accessible, and are designed with target parents’ needs, wants and preferences in mind. Engagement across the research and development process is a potentially useful tool to achieve these outcomes.

Engaging the community in research is a cornerstone of the public health approach to parenting support. Engagement promotes innovation in intervention design by increasing the understanding of community needs, improving the quality of research, and optimising the fit of the intervention for the target constituency. Participatory research, sometimes called participatory-action research or community-based participatory research, provides an excellent model for understanding the benefits of engaging the community in the research process. Participatory research actively engages with the target community to incorporate local knowledge and perspectives into the planning and execution of the body of research (Cornwall & Jewekes, 1995). In this way, research is conceptualised as a continuous collaboration with the community, rather than a set of findings imposed upon it. This process of ongoing consultation, collaboration, innovation, and engagement with the community underscores many of the methods utilised in the current body of work.

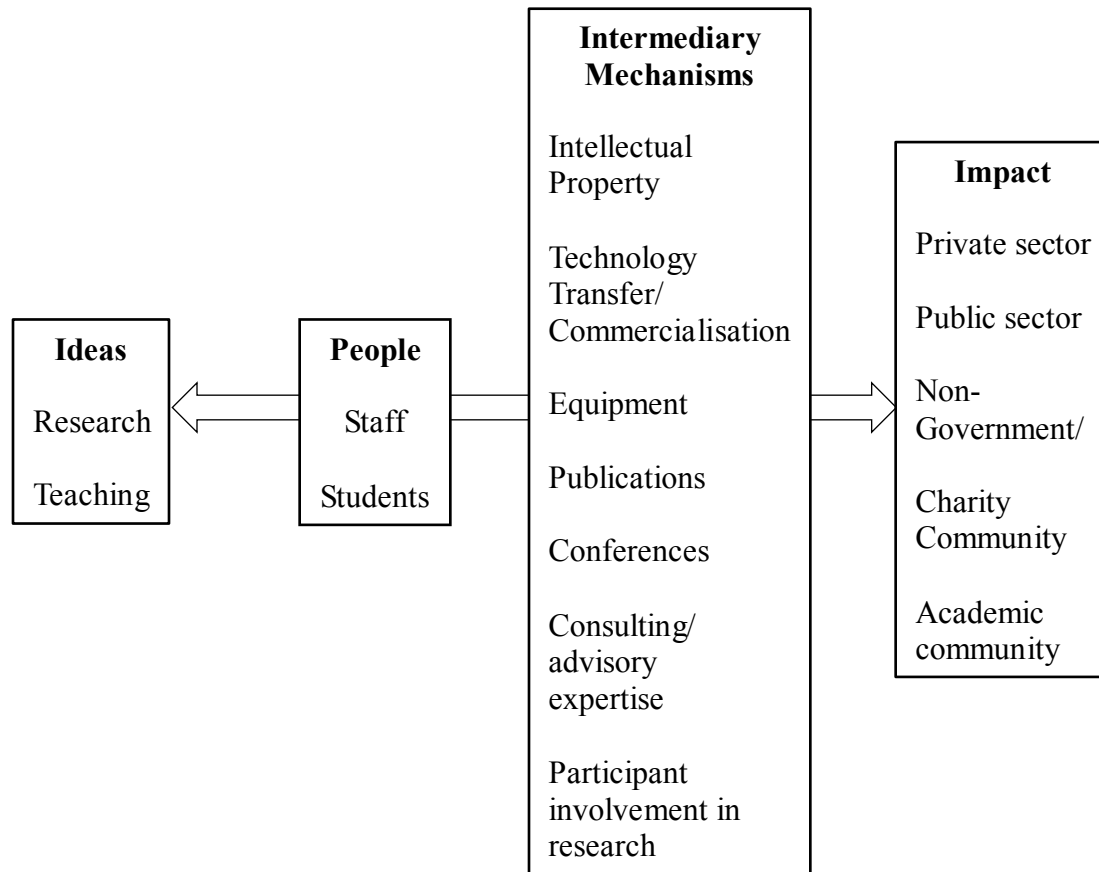
Developing a positive parenting program for improving sibling relationships has the potential to increase the uptake of parenting programs at a community level. Existing evidence indicates that

effective management of sibling relationships can act simultaneously to increase positive developmental outcomes for children, while reducing the risk of the onset of complications or problems such as aggression and conduct disorder (Brody, 1998). Further, the sibling relationship is a highly topical and engaging subject for parents, especially in Western cultures such as Australia (Ralph et al., 2003). Therefore, a community-engaged parenting program for improving sibling relationships has the potential to be a useful addition within a public health approach to positive parenting. Engaging parents in the design of evidence-based programs must be contextualised within a broader framework of innovation and engagement within university research systems.

### **An innovation engagement framework**

For the purposes of this thesis, innovation is defined as the process of generating and testing ideas and interventions that seek to have a positive impact in the community. Engagement is defined as the process that enables academics to be innovative and undertake valued research that has practical, real-world applications and measurable impacts (Hughes, Kitson, Bullock, & Milner, 2013). The mechanisms of engagement and innovation are best understood as multilevel phenomena insofar as they are influenced by both the characteristics of individuals as well as the organisational and institutional context in which they work (Perkman et al., 2013). Certain traits and characteristics of individuals (e.g., seniority) may make them more likely to engage with the community and certain characteristics of their organisation (e.g., reward and acknowledgement structures) may also increase engagement and innovation potential. Innovation and engagement are especially important in the behavioural sciences where there is a growing call for psychology and other related disciplines to make a larger contribution to research that has a measurable impact in the community across wide-ranging domains (see Kazdin, 2009).

Figure 1.1 outlines an innovation engagement framework that provides important context for this dissertation. It highlights that engagement is the primary mechanism within universities responsible for linking ideas to impact (Dodgson, Gann, & Phillips, 2014). The framework demonstrates how universities fundamentally undertake activities around two ideas: research and teaching. Staff and students assume responsibility for linking these ideas to impact. However, there are important intermediary mechanisms that staff and students interact with to enhance impact. One example mechanism is participant involvement in research—a focal point of the current body of work. The bidirectional nature of the framework shows how multiple groups can interact with the research process through multiple intermediary mechanisms to enhance idea generativity, innovation, and increase impact. Engagement can enable researchers to increase their impact in multiple sectors, including the research world, business, government, and the community.



*Figure 1.1.* An innovation engagement framework that links ideas to impact in university settings

The innovation engagement framework provides a useful lens for interpreting several aspects of this thesis, including the value of program adaptation (rather than the creation of new intellectual property), the importance of engaging participants in program design, the role of commercialisation, and the need to enhance the graduate training experience.

### **Thesis structure and overview**

Chapters 2, 3, 4, and 6 have been published or are undergoing revision in peer-reviewed journals. A decision was made at the outset of this dissertation to systematically publish ideas and findings as the project unfolded. Chapter Two presents a conceptual framework for enhancing the health and well-being of communities through the iterative development of empirically supported parenting interventions. Using the challenge of parenting siblings as a case example, the chapter illustrates how evidence-based parenting interventions can be developed to meet the needs of different constituent groups, resulting in more positive families and stronger communities. Chapter Three documents the results a survey of Australian parents on their views on difficult sibling behaviours and on what, if any, help they desire in dealing with the issue. Chapter Four outlines the rationale for adapting an existing Triple P intervention for the purpose of improving sibling relationships. Chapter Five presents the results from the foundational randomised controlled trial of

the intervention for improving sibling relationships. Chapter Six demonstrates how working with the media throughout the process of developing interventions can potentially shift community attitude on the issue of sibling conflict. The thesis culminates in a general discussion (Chapter 7) that integrates key findings and makes observations relating to innovation, engagement, graduate training, commercialisation, and ideas for future research.

It is envisioned that readers of this thesis will take away the following narrative from the body of work presented –

1. For those that have a sibling, the sibling relationship is integral to psychosocial development.
2. Parents are crucial agents in determining the ‘quality’ of the sibling relationship, by means of encouraging positive sibling interactions and disarming hostile interactions.
3. Existing evidence shows that parenting programs are highly effective at improving general parenting practices and child behaviour.
4. Sibling conflict is among the most common issue parents find difficult in raising children.
5. Few evidence-based parenting programs that specifically assist parents manage their children’s relationships are available. No programs include engagement of parents as part of the program development process.
6. Hence, the development of a parenting program for improving sibling relationships that is undertaken in consultation with parents in the community not only stands to help improve sibling relationships, but also to respond to genuine need in the community.
7. The development of a parenting program in consultation with the community of parents it intends to serve will enhance the fit and uptake of the intervention across that community.
8. Understanding and refining the process of innovation and engagement within the research and development cycle is an important undertaking for researchers in the behavioural sciences.

## **Chapter 2**

Enhancing Communities through the Design, Development and Dissemination of Positive Parenting Interventions

*This chapter consists entirely of a paper published in the Journal of Applied Research on Children: Informing Policy for Children at Risk*

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### **Abstract**

Positive, healthy and happy families are the cornerstone of any healthy community. Parenting programs which address multiple aspects of family functioning are potentially the most effective means of creating positive family environments. However, the various constituents who “consume” parenting support and intervention are often not engaged to help shape program design and development. Using the challenge of parenting siblings as a case example, this paper describes a conceptual framework for enhancing the health and wellbeing of communities through the iterative development of empirically supported parenting interventions. A model of program development involving enhanced consumer involvement is presented to illustrate how evidence-based parenting interventions can be developed to meet the needs of different constituent groups resulting in more positive families and stronger communities. Policy implications and questions of cost-effectiveness are discussed.

**Keywords.** Healthy Communities, Family, Consumer Engagement, Intervention Design and Development, Sibling Conflict.

## **Enhancing Communities through the Design, Development and Dissemination of Positive Parenting Interventions**

There is now overwhelming evidence linking early parenting practices and positive, nurturing environments to almost every aspect of child development (Biglan, Flay, Embry, & Sandler, 2012; Cartmill et al., 2013; Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; Coren, Barlow, & Stewart-Brown, 2003; Dretzke et al., 2009; Embry, 2004; Furlong et al., 2012; Gutman & Feinstein, 2010; Heckman, 2008; Kirp, 2011; Sanders, Morawska, Haslam, Filus, & Fletcher, 2014; Stack, Serbin, Enns, Ruttle, & Barrieau, 2010). The extent to which children grow up to be healthy and well-adjusted depends largely upon the way in which they are raised (Beaver & Belsky, 2012; Belsky & de Haan, 2011); and the extent to which parents raise their children positively has significant flow-on effects for the communities in which they inhabit (Heckman, 2008).

Evidence-based parenting programs which seek to instil a warm, responsive, consistent parenting environment that provides boundaries and contingent limits for children in a low conflict family environment affords children many essential life skills which significantly shapes their lifelong interactions with the community (Sanders, 2012). Whether through accelerated language development, greater readiness for school, higher academic achievement, reduced risk of antisocial behaviour, substance abuse problems, mental health issues, an increased likelihood of involvement in higher education, improved physical health, improved workplace performance, or greater capacity for later intimate relationships, positive parenting interventions target multiple factors which lay the foundation for lifelong prosperity for both the individual and broader community (Moffitt et al., 2011; Guajardo, Snyder, & Petersen, 2009; Heckman, 2008; Gutman & Feinstein, 2010; Sanders, 2012; Stack et al., 2010). There is no more important potentially modifiable target of preventive intervention and conceivably no more powerful means of enhancing the health and well-being of a community than evidence-based parenting practices.

This paper makes the case that the process of designing, developing and disseminating evidence-based parenting interventions is crucial to not only enhancing outcomes for children and their parents, but just as importantly, the communities in which they live. In making this case we demonstrate that rarely are the consumers of parenting programs accessed—especially policy makers—when programs are being developed and this lack of consumer engagement potentially limits intervention impact.

To illustrate this point we use sibling conflict—one of the most commonly reported and universal challenges parents face—as an exemplar of how existing evidence-based interventions can be adapted to meet the needs of a diverse range of parents with benefits at the child, parent and community level. We begin by briefly examining the existing consumer engagement literature, focusing specifically on how consumer involvement in the intervention development and

dissemination process can be used to enhance various aspects of intervention design and development.

### **Consumer Engagement and the Development of Parenting Interventions**

Consumers of parenting interventions encompass a wide variety of target groups including parents and their children, the practitioners who deliver the intervention, agencies that train practitioners, and overarching bodies such as governments who make policy-based decisions relating to funding and implementation of such interventions. Consumers are a richly valuable source of information and depending on the type of consumer engaged can be called upon to explicate the problem behaviours interventions seek to manage; the applicability and acceptability of the recommended strategies; preferences for delivery of the intervention; methods of enhancing practitioner training and service delivery; population-level needs areas and fiscal priorities.

Although the idea of seeking the consumer perspective in intervention development is neither new (e.g., Wolf, 1978) nor totally neglected (e.g., Sanders & Kirby, 2012), the involvement of consumers across all aspects of program design and development has received relatively limited attention in the parent training field. Typically, investigators rely on theoretical models to inform the development of an intervention and then trial the intervention in clinical settings to determine program effectiveness and subsequent “consumer (viz. client) satisfaction”. However, such limited scope in assessing consumer need, demand, preferences and satisfaction restricts the potential benefits obtainable through engaging the consumer voice more comprehensively.

The main goal of applying a consumer approach to intervention development is to enhance the ecological fit between parenting programs and parents’ needs to enhance the effectiveness of the outcomes of intervention across both the individual and community level. Consumer engagement not only seeks to maximise the effectiveness of the intervention at the individual parent or child level (e.g., the extent to which an intervention lowers behavioural problems), but also seeks to maximise the likelihood that it will be widely adopted and disseminated (i.e., the extent to which a government is likely to embed an intervention across a community). Consumer information is not obtained to replace or supersede established theories and empirical findings, but rather to be integrated with theory and empirical research to optimise specific elements of the intervention.

An example of the consumer engagement process in action was provided by Kirby and Sanders (2012) who adopted a parent-as-consumer perspective in developing a tailored parenting program for grandparents. Their main goal was to examine the challenges encountered by grandparents in the role as informal child care providers and then use this information to inform the development of a parenting program for grandparents. Drawing on well-established theoretical bases (e.g., social learning theory) and empirical foundations (e.g., behavioural parent training), the authors conducted focus groups with grandparents whereby specific questions were asked about the challenges faced



by grandparents and what they would like to see included in a grand parenting program. A thematic analysis of focus group content was performed and the results were integrated with the theoretical and empirical foundations to tailor an intervention specifically to the needs of grandparents. The program has since been trialled successfully with grandparents and is now being prepared for dissemination and further replication studies (see Kirby & Sanders, 2014).

Beyond grandparents, researchers have also explored the needs and preferences of parents of middle income countries (Mejia, Calam, & Sanders, 2013), parents of preterm babies (Ferrari, Whittingham, Boyd, Sanders, & Colditz, 2011), parents of children with cerebral palsy (Whittingham, Wee, Sanders, & Boyd, 2011), parents of children with Autism Spectrum Disorder (Whittingham, Sofronoff, & Sheffield, 2006) and ethnically diverse populations (Morawska, Haslam, Milne, & Sanders, 2011). Interestingly, however, all these studies have in common is a focus on the *parent-as-consumer*. Focussing on the parent-as-consumer is useful, but narrow—especially from a public health perspective—because data from other target groups within the consumer sphere could also be obtained to enhance the ecological fit of the intervention.

As outlined in Table 2.1, there are a variety of different consumers and methods of engaging these consumers within parenting interventions. Within these methods of engagement, there are numerous possible outcomes and implications for intervention design and dissemination. For example, to enhance the population reach and subsequent community impact of parenting interventions practitioners delivering the intervention could be engaged through a mix of focus groups and surveys to help inform the best methods of delivery to parents, what obstacles and barriers they encounter, and the factors which may enhance the flow of information to parents. In addition, agencies which employ practitioners to deliver the intervention to parents can be engaged to help inform the best models of supervision, provide feedback on the training process, and identify opportunities for increasing agency-level adoption and support of intervention delivery. Moreover, governments and policy makers could be consulted to understand which population-level problems are a priority from a policy perspective as well as what fiscal considerations are relevant to investing in parenting programs. It is important for intervention developers to be attuned to questions of cost-effectiveness, feasibility, and government priority when developing interventions. Taking a holistic, synergistic approach to intervention development which addresses current identified need and priority areas in the community should enhance the likelihood of the intervention being adopted and delivered in the community.

Table 2.1

*Different Groups of Evidence-based Parenting Intervention Consumers and Possible Outcomes of Harnessing their Particular Voice*

Type of consumer	Means of engagement	Outcome of engagement
Parent	Focus Group Survey Individual Interview	<ul style="list-style-type: none"> <li>• Identification of issues and problem behaviours that parents need help with</li> <li>• Determination of how acceptable proposed strategies within the intervention are</li> <li>• Determination of how applicable proposed strategies within the intervention are</li> <li>• Determination of preference for how best to receive the intervention (e.g., group, online, individual)</li> </ul>
Child	Individual Interview Role Play	<ul style="list-style-type: none"> <li>• Identification of issues and problem behaviours that parents need help with</li> <li>• Determination of how acceptable proposed strategies within the intervention are</li> </ul>
Practitioner	Focus Group Survey	<ul style="list-style-type: none"> <li>• Identification of issues and problem behaviours that parents need help with</li> <li>• Determination of how acceptable proposed strategies within the intervention are</li> <li>• Determination of how applicable proposed strategies within the intervention are</li> <li>• Determination of preference for how best to deliver the intervention (e.g., group, individual)</li> <li>• Information relating to points of parental resistance and barriers to parental uptake</li> <li>• Information relating to how supportive agency is and what can be done to enhance support</li> </ul>
Agency	Focus Group Survey	<ul style="list-style-type: none"> <li>• Determination of how successful practitioner supervision is and what could be done to improve it</li> <li>• Feedback on training process</li> </ul>

		<ul style="list-style-type: none"> <li>• Determination of preference for how best to receive training in the intervention (e.g., group, online)</li> <li>• Identification of factors to enhance agency-level adoption of the intervention</li> </ul>
Government and Policy Makers	<p>Interview or direct consultation</p> <p>Inspection of policy or position paper</p> <p>Budget analysis</p>	<ul style="list-style-type: none"> <li>• Identification of government priority areas</li> <li>• Assessment of population need for service or intervention</li> <li>• Understanding of fiscal environment and barriers to policy support</li> </ul>

To illustrate the process and value of an integrated consumer engagement approach to intervention design and development, we introduce below a conceptual framework for consumer engagement in the development of a parenting intervention for managing sibling conflict and rivalry. Sibling fighting, aggression and rivalry rank among the most commonly reported and significant problems parents face in their role as parents (Kramer & Baron, 1995; Brody & Stoneman, 1987; Ralph et al., 2003); and if left unattended, sibling aggression is associated with significant behavioural and emotional problems in later life (Tucker et al., 2013).

### **A model of program development to enhance communities through the management of sibling conflict**

Children's relationships with their siblings are among the most important contributors to their mental health and wellbeing throughout life. Such is the significance of the sibling relationship that the strongest predictor of well-being at age 65 among male Harvard alumni was found to be the quality of their sibling relationships during college (G. E. Vaillant and Vaillant, 1990). Siblings affect each other's social, cognitive and behavioural development and there are over 26 different types of sibling that someone can have (Treffers, Goedhan, Waltz, & Kouldijs, 1990). Whether it's the acquisition of interpersonal skills (Downey & Condrón, 2004), cognitive development (Azmitia & Hesser, 1993), social understanding (Dunn, 2002), socio-cognitive reasoning skills (Slomkowski & Dunn, 1992), delinquent behaviour (Patterson, 1986; Criss & Shaw, 2005; Bank et al., 1996), behaviour problems in adolescence (Dunn, Slomkowski, Beardsall, & Rende, 1994), or even protection against the adverse effects of marital discord (Jenkins & Smith, 1990), siblings play a pivotal role in shaping an individual's development and how that individual will ultimately go on to interact with his community through life.

Evidence from behaviourally based parenting programs provided preliminary support for the role of parents in reducing sibling conflict. Using mixed method designs, including single case designs, behaviour therapists have successfully demonstrated how strategies such as timeout (K. D. O’Leary, O’Leary, & Becker, 1967), logical consequences (Kelly & Main, 1979), reinforcement and contingency management (T. S. Allison & Allison, 1971), and social skills (Olson & Roberts, 1979) training have all been successfully used to target sibling aggression (see Kramer, 2004 for a full review).

Not surprisingly, much of the focus to date has been on reducing undesirable behaviours rather than teaching specific, positive sibling interaction skills. In a series of studies evaluating a family-based preventive intervention for preschool-age siblings of antisocial youths, Brotman et al. (2003; 2004; 2005a; 2005b) examined the extent to which a targeted intervention of elder siblings could act as a preventative intervention for younger siblings. The intervention combined the Incredible Years Parenting Program, (Webster-Stratton, 1987), with additional components consistent with social interactional learning and transactional developmental models of conduct problems. One of the main findings to emerge across the Brotman et al. studies was that families were motivated to participate in a prevention program focused on their typically developing preschool-age child, as a result of their adolescent child who had engaged in serious delinquent behaviours (Brotman et al., 2003, 2004). In the larger trial (Brotman et al., 2005b), the effects of the preventive intervention on parents and children were convincing. Relative to controls, intervention parents used fewer negative parenting practices and provided greater stimulation for learning at home. Preschoolers in the intervention were observed to exhibit enhanced peer skills relative to controls. Such positive immediate outcomes on parenting practices and child social competence with peers are expected to contribute to the prevention of later conduct problems in the targeted pre-schoolers, rendering interventions which address sibling conflict to be of potential significance to not only the individual family, but to the broader community as well.

An opportunity exists therefore for intervention developers to create a collaborative, bidirectional process of knowledge exchange which seeks to maximise individual and community benefit by enabling the development of the most effective and disseminable intervention for managing sibling conflict. Soliciting input from different consumer groups across each aspect of the development and deployment of the intervention will maximise its applicability and effectiveness across the population of parents. In particular, the consumer voice as expressed by policy makers will enable the identification of government priority areas, allow for assessment of population-level need for service or intervention, and create an informed understanding of the fiscal environment and barriers to policy support. In addition, preference information from other sources can be extracted to help design the intervention to enhance its appeal and acceptability such as the strategies used,

delivery format (large group, individual, seminar), supporting materials, and other relevant information such as partner involvement and support.

Figure 2.1 outlines a 10 stage iterative model of program design and development which acts as a template for development of parenting interventions. Beginning with the identification of a sound theoretical framework right through to the ultimate goal of an intervention being made widely available and receiving population-level uptake, the model emphasises the importance of intervention development as being dynamic and responsive to the consumer voice and seeks to marry consumer preference data alongside sound theoretical and empirical foundations. The end result is to infuse consumer feedback information across the entire intervention design and development process and make widely available the most effective possible intervention which is widely deployable.

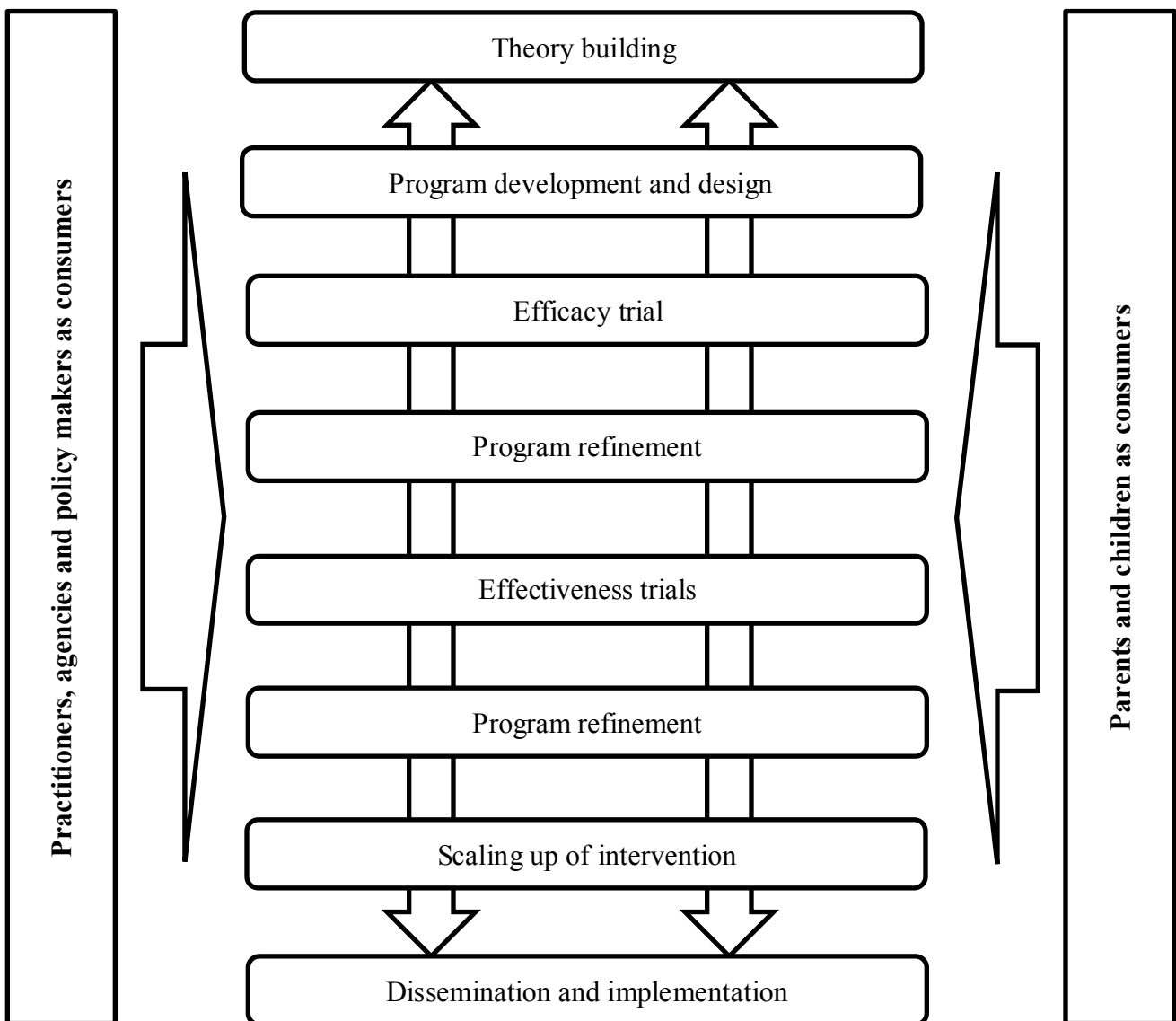


Figure 2.1. The integrated 10-part process of program design and development, incorporating the consumer perspective.

Using the phases outlined in Figure 2.1, it is proposed that intervention developers select and adhere to a theoretical framework to lay a foundation for the intervention. An example framework for sibling conflict parenting intervention is to adopt a social learning and cognitive-behavioural approach as these approaches have well documented effects in reducing problem behaviours in children and adolescents (Dretzke et al., 2009; Kazdin & Blase, 2011). Drawing upon a robust theoretical framework, coupled with an initial wave of consumer preference data (e.g., government priority areas, parent preferences) the intervention is designed and developed in preparation for initial feasibility trialling.

The efficacy trial involves administering the intervention, typically in a randomised clinical trial setting, to “road test” the intervention and also to capture further consumer input in the form of usability feedback for further program refinement. At this stage in the development process, feedback should be provided by consumers and should be specific with the intention of making directed modifications to program content and delivery. An example modification may be the inclusion of an added activity aimed to enhancing parents’ skills in monitoring sibling interactions with increased focus on preventive strategies to avoid sibling conflict from occurring. Once this second wave of consumer feedback is provided, the intervention is ready for effectiveness trialling.

Parallel to the discrete phases described above, the consumers of the intervention are engaged (including parents, children, practitioners, agencies and governments) to provide input to all aspects of program design. For policy makers, this process may consist of directed engagement of key personnel within government to assess the level of priority of need in the community, estimate funding available for projects, and help inform policy analysis of government priorities. In the case of siblings, the outcomes of the initial consumer engagement process may be that the government has identified vulnerable families with complex co-occurring problems (e.g., alcoholism, mental health concerns, limited socio-economic resources) as a priority area, and they are eager to make an intervention available to all parents of children under 7 who fall within this category. Accordingly, developers can seek to address how their intervention meets the needs of these families as they flow through the design and development phases.

Beyond policy makers, focus groups with parents could be undertaken to orientate the research team to the key issues facing parents of siblings, the sibling themselves and the practitioners working with parents. The focus groups could address a series of directed questions aimed at eliciting the main areas of concern for the consumers which can then be used to inform program content, delivery mode, ongoing supervision, and means of overcoming barriers to adoption.

Once the intervention has been shown to be effective and further refinements incorporated, the intervention is now ready to be “scaled-up” for dissemination. Scaling up of an intervention refers to the process of shifting the focus of the intervention away from the clinical management of

individual families and their children to entire populations of families and children living in defined communities. However, the process of responding to consumer needs and preferences is an ongoing process and developers need to remain vigilant in attending to changes in consumer needs and preferences and be willing to incorporate further program refinements as necessary. Program developers should build-in formal mechanisms aimed at capturing consumer feedback on the intervention while it is being more widely deployed.

### **Taking Interventions to Scale: Implications for Policy Makers**

One of the key challenges in engaging and harnessing the consumer voice in the development of a sibling conflict parenting intervention is to ensure that the intervention itself is put to maximum possible use by reaching as many “end users” as possible who might benefit from the intervention. The most effective way to enhance end user uptake is to adopt a public health approach to parenting support. Within a public health framework, an intervention targeting sibling conflict is conceptualised as just one component of a larger system of parenting support that seeks to enhance child and parent outcomes more broadly. For community level benefits to occur, there must be a process of destigmatizing and normalizing the notion of seeking parenting support and mechanisms of increasing awareness and acceptability of parents undertaking formalised parent training. Currently, many parents perceive parenting programs as being for inadequate, ignorant, failed or wayward parents, as opposed to a normal part of the child rearing process which stands to benefit the parents themselves, their children, and the community in which they live

To improve uptake of parenting programs and to make them more accessible a whole of population approach to parenting support is required. A population approach to parenting support has received increasing attention in the evidence-based practice literature, and recent studies have added support for the impact of disseminating parenting interventions across an entire community (e.g., Sanders, Calam, Durand, Liversidge, & Carmont, 2008; Prinz, Sanders, Shapiro, Whitaker, & Lutzker, 2009). Prinz et al. (2009) randomized eighteen counties in South Carolina (USA) to either the Triple P system or to care-as-usual control. Following intervention the Triple P counties observed lower rates of founded cases of child maltreatment, hospitalizations and injuries due to maltreatment, and out of home placements due to maltreatment. This was the first time a public health parenting intervention has shown positive population level effects on child maltreatment in a randomized design and provides great promise for the potential value of a population approach to parenting support. It also demonstrates to policy makers the potential of positive parenting programs to enhancing the lives of individuals within the community and also the fabric of the community more broadly.

The population approach emphasises the universal relevance of parenting assistance so that the larger community of parents embraces and supports parents being involved in parenting programs.

From a population-level perspective, intervention developers must consider how their program fits with local needs and policy, and be mindful of the cost-effectiveness of their proposed solution. Improved parenting is a potentially powerful cornerstone of any prevention and early intervention strategy designed to promote positive outcomes for children and the community. However, strengthening parenting and family relationships across the entire population as a preventive approach will be most likely to occur if developers work synergistically with policy makers to achieve common goals.

### **Conclusion**

The extent to which parents raise their children positively has significant flow-on effects for the communities they inhabit. Evidence-based parenting programs afford children many essential life skills which significantly shape their lifelong interactions with the community; thus, there is no more important potentially modifiable target of preventive intervention and conceivably no more powerful means of enhancing the health and well-being of a community than evidence-based parenting practices. Intervention developers are wise to engage the consumers of intervention and be considerate of policy implications and questions of feasibility and cost effectiveness in designing and developing interventions. Consumer engagement should not be seen as a stagnant, discreet “step” in intervention program development. Rather, consumer engagement is a proactive, responsive and ongoing process that occurs fluidly across all phases of program development.

The process of designing, developing and disseminating evidence-based parenting interventions is crucial to not only enhancing outcomes for children and their parents, but just as importantly, the communities in which they live.



### **Chapter 3**

#### Integrating Parents' Views on sibling relationships to Tailor an Evidence-based Parenting Intervention for Sibling Conflict

*This chapter consists entirely of a paper published in the journal, Family Process.*

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#### **Abstract**

Parents play a crucial role in the development of their children's relationships with their siblings. Despite this, relatively few evidence-based parenting programs exist that specifically offer parents the strategies and techniques they desire and require for managing their children's sibling relationships. One way of bridging this gap is to design a tailored parenting intervention for sibling relationships that incorporates the parent voice in various aspects of program design. The current study recruited a convenience sample of 409 Australian parents to complete an online survey relating to their views on difficult sibling behaviours and what, if any, help they desire in dealing with the issue. The majority of respondents were Caucasian, middle-to-upper class mothers. Respondents predominantly attributed the causes of sibling conflict to their child's internal traits, but expressed strong desire for assistance with managing behavioural problems, especially when sibling relationships were marked by physical aggression. Respondents reported high levels of acceptability for positive, rather than punitive, parenting strategies and showed a clear preference for parenting interventions delivered in easy to access formats. The findings are interpreted in the context of guiding the development of a tailored parenting intervention for enhancing sibling relationships and reducing conflict.

**Keywords.** Sibling Conflict, Parenting, Consumer Engagement, Intervention.

## **Integrating Parents' Views on sibling relationships to Tailor an Evidence-based Parenting Intervention for Sibling Conflict**

Siblings are among the most important developmental influences one can have. Siblings impact each other's acquisition of interpersonal skills (Downey & Condron, 2004), cognitive development and sensitivity (Azmitia & Hesser, 1993; Prime et al., 2014), emotional development and adjustment (Campione-Barr et al., 2013; Kramer, 2014), social understanding (Dunn, 2002), sharing and prosocial skills (White et al., 2014), socio-cognitive reasoning skills (Slomkowski & Dunn, 1992), delinquent behaviour (Bank et al., 1996; Criss & Shaw, 2005; Patterson, 1986), behaviour problems in adolescence (Dunn et al., 1994), development of mental health and behavioural problems (Buist et al., 2013; Tucker et al., 2013), and protection against the adverse effects of marital discord (Jenkins & Smith, 1990). Such is the pervasiveness of the sibling relationship, the strongest predictor of well-being at age 65 among male Harvard alumni was found to be the quality of their sibling relationships during college (G. E. Vaillant & Vaillant, 1990).

Sibling relationships vary in the frequency, intensity, and type of interactions as individuals grow through various development stages (Buist et al., 2013), within an unpredictable sequence of genetic and environmental influences (Rende, Slomkowski, Stocker, Fulker, & Plomin, 1992). Although the majority of sibling interactions are characterised by positive, prosocial, and play-oriented behaviours (Abramovitch, Corter, Pepler, & Stanhope, 1986), conflict between siblings can be very harmful, with potentially lifelong consequences (Skinner & Kowalski, 2013; Tucker et al., 2013). Patterson (1986; see also Patterson, Dishion, & Bank, 1984) hypothesised that irritable, microsocial exchanges within the family—especially sibling relationships—create a virtual 'training ground' for aggression. Arguments, fights, and disagreements among siblings lead to sibling relationships defined by high levels of rivalry and conflict, which have potentially harmful effects in both the short- and long-terms (Rinaldi & Howe, 1998).

### **The Significance of Sibling Conflict**

Sibling conflict has been documented as the most prevalent form of family violence and conflict among siblings is generally more frequent and more volatile than any other family relationship (Straus, Gelles, & Steinmetz, 2003). Siblings aged 2 to 4 years can experience 7.65 disputes per hour and conflicts between siblings aged 3 to 9 years occur at comparable rates, with each lasting approximately 45-seconds (Kramer, Perozynski, & Chung, 1999; Perlman & Ross, 2005). Sibling conflict can, and often does, rise to the level of a clinical problem (Thomas & Roberts, 2009), with some experts suggesting sibling conflict be recognised as a form of psychopathology (Carter & Volkman, 1992; Schroeder & Gordon, 1991), or even the most common form of bullying (Skinner & Kowalski, 2013).

Conflict with siblings can be constructive and provide an invaluable opportunity for children to develop essential life skills (Bedford, Volling, & Aviolo, 2000). Constructive conflict occurs when children are taught to develop and deploy resolution skills and higher order cognitive functioning that can generalize and produce benefits across situations. These skills include negotiating, reasoning, tolerating, perspective taking, patience, and acceptance (Foote & Holmes-Lonergan, 2003; Shantz, 1987). A review by Kramer (2010) highlighted that efforts geared toward eliminating all forms of sibling conflict run the risk of creating further problems by unintentionally impeding children's capacity to manage conflict, solve problems, and regulate emotions.

Destructive sibling conflict, on the other hand, is not useful. Aggression, agonism, coercion, negativity, and violence are all hallmarks of destructive conflict, which is associated with a range of problematic outcomes for children (Abuhatoum & Howe, 2013; Garcia et al., 2000). Research demonstrates the link between sibling conflict and conduct problems in pre-schoolers (e.g., Garcia et al., 2000), and also shows how adolescent adjustment can be predicted from reports of sibling conflict, taking into account maternal and paternal hostility (Stocker, Burwell, & Briggs, 2002). Sibling conflict patterns in adolescence have also been found to correlate with adult romantic relationship conflict (Shalash, Wood, & Parker, 2013). It is perhaps surprising, therefore, that siblings themselves have been shown to possess a self-induced 'norm of acceptance' relating to high levels of conflict in their sibling relationship (Skinner & Kowalski, 2013).

The precipitation and onset of sibling conflict has been linked to many different factors in the empirical literature. Whether it's the age gap between siblings (Dunn et al., 1994; Howe & Recchia, 2006; Pepler, Abramovitch, & Corter, 1981), sibling birth order (Brody, Stoneman, MacKinnon, & MacKinnon, 1985; Howe & Recchia, 2006), developmental stage (Dunn, Creps, & Brown, 1996; Dunn & Munn, 1985; Tesla & Dunn, 1992), parental marital status and conflict (Harrist et al., 2014; Iturralde, Margolin, & Shapiro, 2013), parent gender (Kramer et al., 1999), peer influences (Bassett Greer, Campione-Barr, DeBrown, & Maupin, 2014), or parental favouritism (Richmond, Stocker, & Rienks, 2005), the factors influencing sibling relationships are diverse and plentiful. Interestingly, however, although previous research has identified that parents consider their children's sibling relationships among the most significant issues they face (Ralph et al., 2003), few, if any, studies directly have asked parents what they believe are the underlying causes of their children's sibling relationship problems.

When contextualised within the larger family system, the sibling relationship is a very powerful context for learning and exerts a profound effect on children's developmental trajectories (Howe & Recchia, 2014). Tucker et al. (2013) utilized the data from The National Survey of Children's Exposure to Violence to examine any linkages between early sibling aggression and the onset of mental health problems in children and adolescents. The survey consisted of a sample of 3599 US

children aged 1-month to 17-years who had at least one sibling living with them at the time of sampling. The study demonstrated that participants who experienced sibling aggression in the past year experienced significantly greater mental health distress. The study also showed that both peer and sibling aggression were linked with worsened mental health. The authors concluded that sibling aggression should not be dismissed as “normal” and called for early intervention programs, including parenting programs, to be made available to address this important issue.

### **The Opportunity for Parenting Programs in the Management of Sibling Conflict**

Parents often regard sibling conflict as the most prevalent behavioural problem in their families (e.g. Brody & Stoneman, 1987; Ralph et al., 2003) and destructive patterns of sibling conflict are linked with a myriad of troublesome social and behavioural problems (Kramer, 2004). The way in which parents intervene in conflicts affects how children learn to argue, reason, and resolve their differences (Ross & Lazinski, 2014). If the goal is to help children establish relationships that contain higher levels of positive behaviours, it is necessary to be intentional in efforts to help children develop the social and emotional competencies they need (Kramer, 2010). Previous research has identified that children cannot be expected to learn such skills and competencies on their own and interventions targeting sibling conflict ought to be made available early on in development to help mitigate potentially harmful long-term effects (e.g. Garcia et al., 2000; McHale et al., 2000; Snyder et al., 2005; Tucker et al., 2013). Therefore, it is not surprising that Dunn (1983) argued many years ago that of all the factors associated with the development and maintenance of sibling conflict, few are as significant as the role of parents.

Evidence from behaviourally based parent training programs provides preliminary support for the role of parents in reducing sibling conflict. For example, strategies such as timeout (K. D. O’Leary et al., 1967), logical consequences (Kelly & Main, 1979), reinforcement and contingency management (T. S. Allison & Allison, 1971), and social skills training (Olson & Roberts, 1987) have all been successfully used to target sibling aggression (see Kramer 2004 for a full review). However, despite the demonstrated benefits of parent involvement in sibling conflict, there remains a relative paucity of research examining the best and most effective methods of parental intervention.

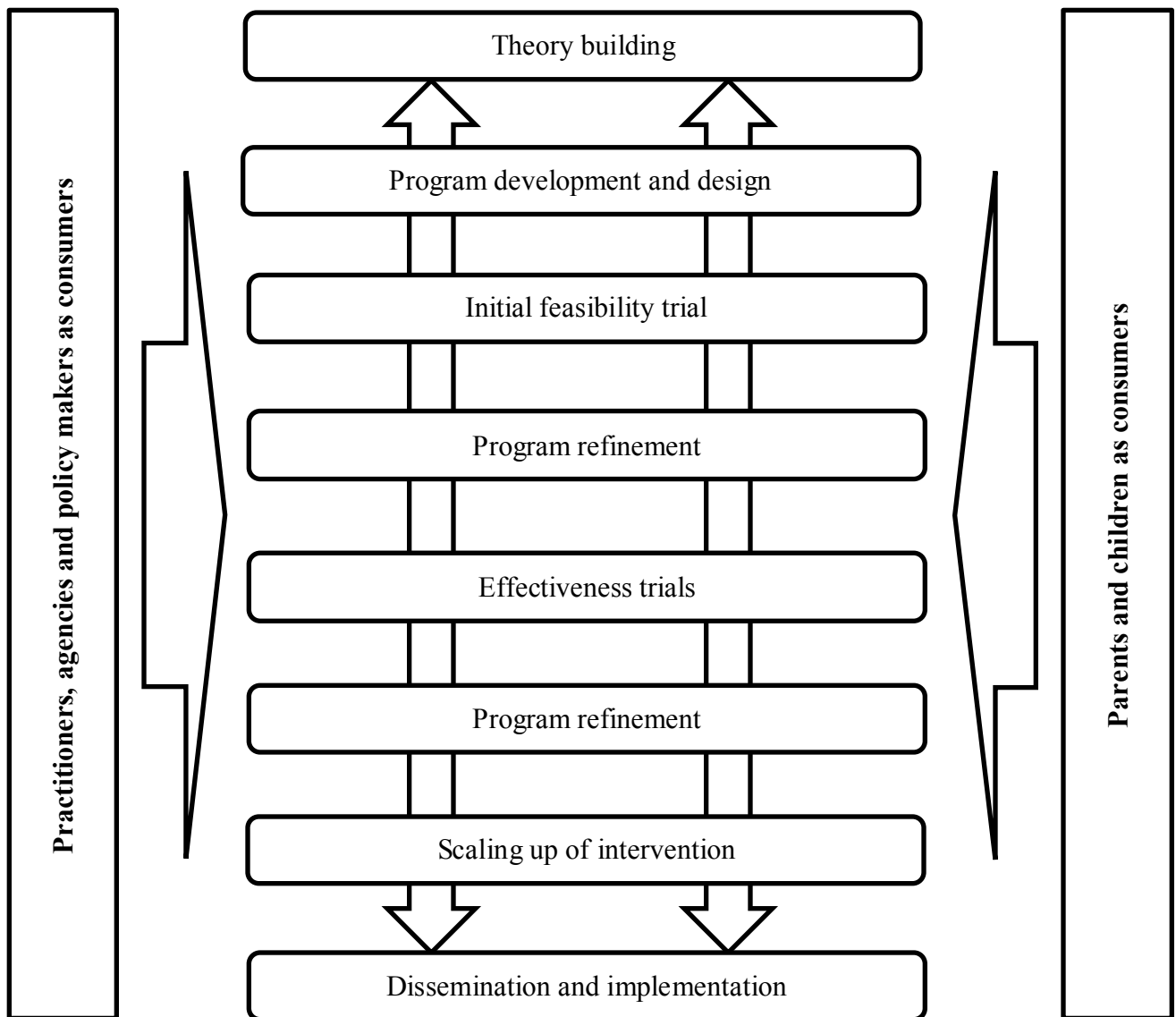
Much of the focus of parenting intervention to date has been on reducing undesirable behaviours rather than teaching specific, positive sibling interaction skills. A few studies have, however, focused on encouraging positive behaviours. For example, Feinberg et al. (2013) conducted a randomized trial of the Siblings Are Special (SIBS) program, a group-format afterschool program for fifth graders with a younger sibling in second to fourth grades. The SIBS intervention directly targeted child and parent outcomes across 12 weekly afterschool sessions and three Family Nights. The program resulted in enhanced positive sibling relationships, appropriate

strategies for parenting siblings and child self-control, social competence, and academic performance. Program exposure was associated also with reduced maternal depression and child internalising problems. Interestingly, however, the SIBS intervention failed to provide an effect for sibling conflict.

Other studies have sought to change parenting behaviour to bring about change in children's levels of conflict. For example, Ross and Lazinski (2014) trained parents to mediate their children's conflicts and demonstrated how parent involvement in conflict behaviours not only led to a reduction in the conflict behaviour, but also a skills transfer effect was detected whereby children were able to replicate the mediation skills they experienced through their parents. This is an important finding because it points to not only the potential power of parenting intervention in alleviating conflict but also suggests that children can learn new skills through their parents' enhanced skills. In a study of 65 families of Mexican descent, Gamble and Yu (2014) identified that supportive and democratic parenting and positive family expressivity were associated with sibling relationships defined by high warmth and low agonism; indicating that positive parenting practices may well be implicated in the mechanisms of reducing sibling conflict.

### **Consumer Engagement and the Development of Effective Parenting Interventions for Managing Sibling Conflict**

Pickering and Sanders (2013) argued that any effort to develop an evidence-based parenting program must include the consumer voice throughout the research and development process. The authors presented a model of program development involving enhanced consumer involvement (Figure 3.1) to illustrate how evidence-based parenting interventions can be developed to meet the needs of different constituent groups, resulting in more positive families and stronger communities. The 10-part process emphasises the importance of intervention development as being dynamic and responsive to the consumer voice and seeks to marry consumer preference data alongside sound theoretical and empirical foundations. The end result is to infuse consumer feedback information across the entire intervention design and development process to help develop the most effective possible intervention that is widely accessible and acceptable.



*Figure 3.1.* The integrated 10-part process of program design and development, incorporating the consumer perspective.

Consumer input during intervention development can be used to improve the fit of parenting programs to the community they intend to be deployed. Engaging consumers is particularly important in the design of parenting programs that adopt a population-level approach (Pickering & Sanders, 2015a). Parenting programs are unlikely to be used, regardless of their effectiveness, if they are perceived as unacceptable (Eckert & Hintze, 2000). Soliciting consumer input is one potentially important step in overcoming this problem by looking into the relevance and acceptability of interventions, clarifying the enablers and barriers to engagement and involvement of parents, and infusing this information with sound theoretical principles underlying the problem under investigation (Sanders & Kirby, 2012). Individuals are more likely to access treatments that

they view as acceptable (Pemberton & Borrego, 2005). Therefore, assessing acceptability is important to determine if a program needs to be adapted to suit a given community (Lau, 2006).

An example of engaging the parent-as-consumer was provided by Kirby and Sanders (2012) who adopted a consumer focused perspective in developing a tailored parenting program for grandparents. Their main goal was to examine the challenges encountered by grandparents in the role as an informal child care provider and then use this information to inform the development of a parenting program for grandparents. The authors conducted focus groups with grandparents whereby specific questions were asked about the challenges faced by grandparents and what they would like to see included in a grand-parenting program. A thematic analysis of focus group content was performed and the results were used to tailor a parenting intervention specifically to the needs of grandparents. The program developed has since been trialled successfully with grandparents and is being prepared for dissemination and further replication studies (Kirby & Sanders, 2014).

Research also has adopted a parent-as-consumer focus to examine the needs and preferences of parents in low resource settings (Mejia et al., 2015a), parents of preterm babies (Ferrari et al., 2011), parents of children with cerebral palsy (Whittingham et al., 2011), parents of children with Autism Spectrum Disorder (Whittingham et al., 2006), parents of preterm infants (Whittingham, Boyd, Sanders, & Colditz, 2014) and ethnically diverse populations (Morawska, Sanders, et al., 2011). Other researchers have gathered consumer input information to help understand the mode of intervention delivery preferred by parents (Metzler, Sanders, Rusby, & Crowley, 2012). Finally, Morawska et al. (2012) engaged practitioners-as-consumers to garner their views and to help determine whether the content of a prospective parenting intervention would be suitable for specific populations.

To our knowledge, no study has explicitly examined what types of issues parents of siblings are seeking assistance with, what they attribute the causes of sibling conflict to be, and what their preferences are in terms of receiving support for managing sibling relationships. An opportunity exists for program developers to go one step further in the designing sibling conflict interventions by bringing into focus the parent-as-consumer-voice in the design and development of parenting interventions aimed at reducing sibling conflict. As consumers of interventions, parents are among the most valuable resources for the development of effective evidence-based parenting interventions. Consumer input, when integrated within a robust theoretical and empirical framework, can illuminate multiple aspects of intervention design and development with particular implications for how acceptable the intervention is deemed to be, and hence, how likely it is to be utilised in the target community.

## The Current Study

The current study provides a first step in the development of a tailored parenting intervention for managing sibling conflict. Our goal is to gain the parent-as-consumer perspective to better understand parents' views relating to the nature, causes, and significance of the challenge of parenting siblings. Using a convenience sampling methodology, the current study seeks to shed light on what parents find important in managing sibling relationships, what their perceptions are of the causes of sibling conflict, and what help they may require in dealing with the issue. The goal of eliciting this information is to enhance the ecological fit of a prospective parenting intervention and increase its acceptability and likelihood of uptake in the immediate community in which it will be deployed. The current study focuses on younger children, aged 2-10 years. The empirical link between early sibling conflict and the onset and development of problems in later life (see Tucker et al., 2013), combined with the call to make intervention programs available as early as possible (see Synder et al., 2005), provide the rationale for focussing on this age range.

## Method

### Participants

A total of 520 parents in Australia ( $M_{\text{age}} = 34.2$ ;  $SD = 5.19$ ) were recruited to participate in the study. Of the original 520 participants, 50 were excluded because they did not meet the eligibility criteria, and a further 61 were excluded because they had greater than 95% of data missing; leaving 409 participants who were included in the study. The eligibility criteria for the study included: (a) being a parent of more than one child; (b) having 2 children aged between 2-10 years; and (c) no more than 4-years separating the two siblings. Participants were recruited through school and university newsletters, community noticeboards, social media, media releases, and word-of-mouth. To ensure participation was made available to a broad range of sociodemographic participants, recruitment specifically targeted lower sociodemographic suburbs and father friendly environments such as workplaces to encourage father participation. The wording of recruitment materials was designed to engage parents who were raising multiple children and had concerns about sibling rivalry, fighting, and aggression. The initial catchment area was confined to the greater Brisbane area, but following significant media interest in the survey (national television, newspaper, and radio) the catchment area ultimately extended across Australia.

The majority of participants were female (94.1%) and had an average of 2.60 ( $SD = .82$ ) children. The mean age of the older sibling was 6.89 years ( $SD = 2.08$ ) and the younger sibling was 4.81 years ( $SD = 2.01$ ). As depicted in Table 3.1, parents were predominately married (76.96%), Caucasian (88.97%), had a university degree (40.7%), were employed either part-time (42.54%) or fulltime (27.87%), and had a high family income. A minority of parents had participated in a



parenting program previously (18.82%) and the majority (68.71%) reported that they considered their children to be currently experiencing sibling conflict.

Table 3.1

*Participants' Sociodemographic Information*

Participant Demographic	<i>n</i>	%
<b>Ethnic Group</b>		
White Australian	372	88.57%
European	27	6.42%
South-East Asian	3	.71%
Aboriginal/Torres-strait	3	.71%
Southern/Central Asian	2	.48%
African	1	.24%
Maori	1	.24%
Pacific Islander	1	.24%
<b>Marital status</b>		
Married	325	77.38%
Defacto	51	12.14%
Divorced/Separated	34	8.10%
Single	8	1.90%
Widowed	1	.24%
<b>Education</b>		
Bachelor's degree	172	41.05%
TAFE/college certificate	73	17.42%
Higher Degree	64	15.27%
Year 12	61	14.56%
Other	23	5.49%
Year 10/11	12	2.86%
Trade/apprenticeship	9	2.15%
Less than year 10	5	1.19%

Table 3.1 (Continued)

Participant Demographic	<i>n</i>	%
<b>Income</b>		
\$100 000 or more	200	48.08%
\$75 000 to \$100 000	83	19.95%
\$50 000 to \$75 000	65	15.62%
\$30 000 to \$40 000	22	5.29%
\$40 000 to \$50 000	17	4.09%
\$20 000 to \$25 000	11	2.64%
\$25 000 to \$30 000	9	2.16%
\$16 000 to \$20 000	7	1.68%
\$16 000 or less	2	.48%
<b>Employment</b>		
Part-time	179	42.62%
Full-time	116	27.62%
Homemaker	106	25.24%
Student	15	3.57%
Unemployed	4	0.95%

## Measures

The Family Background Questionnaire (FBQ) was used to collect information on participant demographic data including parent and child age, gender, marital status, ethnicity, education, employment status, and income. Participants also were asked whether they had participated in a parenting program. The FBQ was adapted from the Western Australian Child Health Survey (Zubrick et al., 1995) and has been widely used in intervention research across the past 20 years.

The Parental Expectations and Perceptions of Children's Sibling Relationship Questionnaire (PEPC-SRQ; Kramer & Baron, 1995) contains 24 items that measure parental perceptions of sibling relationships and parental self-efficacy in managing in sibling behaviours. The PEPC consists of two sections each comprising a list of behaviours that could be exhibited between a sibling pair such as "sharing", "jealousy", "physical aggression", "arguments", "protectiveness", and "helping one another". The first section elicits information on parents' standards for children's relationships where parents are asked to imagine a family—not necessarily their own—in which the children get along well and then describe the frequency in which each of the 24 behaviours (e.g., fighting, jealousy, sharing) occur on a 1 (never) to 5 (always) scale.

The second section of the PEPC uses the same 24 behaviours but elicits parents' perceptions of their own children's sibling relationships across four domains: (1) how frequently each of the behaviours occurs in their children's relationship? This item is scored on a 1 (never) to 5 (always) scale; (2) how much the behaviour is a problem?; This item is scored on a 1 (it's not a problem) to 4 (it's a very big problem) scale; (3) if this is a problem how easy would it be to improve? This item is scored on a 1 (very difficult) to 5 (very easy) scale; and (4) how much help is needed with the problem? This item is scored on a 1 (no help) to 3 (a lot of help) scale. The final question in the PEPC asks parents to rate how well their children get along on a 1 (very poorly) to 7 (extremely well) scale. Reliability is calculated separately for the standards and perceptions sections of the scale. For the standards section, the PEPC-SRQ showed strong internal reliability in the current sample across the three dimensions of warmth ( $\alpha = .92$ ), agonism ( $\alpha .87$ ), and rivalry/competition ( $\alpha = .85$ ). Internal reliability was strong also across the dimensions of warmth ( $\alpha = .93$ ), agonism ( $\alpha .91$ ), and rivalry/competition ( $\alpha = .80$ ). Sibling relationship quality is measured by examining the difference between parents' standards of children's sibling relationships and their perception of their own children's behaviour.

A causes of sibling conflict scale was developed for the current study to assess parents' perception of how likely specific traits and behaviours cause sibling conflict and enable exploration of the relationship between level of sibling conflict reported and parental perceptions of causes. Development of the items contained within this survey was informed by existing literature examining possible causes of sibling conflict combined with possible causes generated by the research team. Example behaviours include "siblings not agreeing with one another", "differential treatment of siblings by parent/s", "siblings too close in age", and "over interference from parents". Parents were asked to rate each of 12 possible causes of sibling conflict on a 1 (not at all likely) to 5 (extremely likely) scale.

A measure of parenting intervention strategy acceptability was adapted from Morawska, Sanders, et al., (2011) for the current study. Participants were asked to rate the acceptability and likelihood of use of 10 strategies for dealing with sibling conflict. A 5 point scale was used ranging from 1 (not at all acceptable/likely) to 5 (extremely acceptable/likely). The strategies included existing strategies used in positive parenting programs such as quiet-time, time-out, and encouraging good behaviour. The main modification of the measure from Morawska, Sanders, et al., was the inclusion of 'negative' strategies such as smacking and lecturing. It was decided to include these negative strategies to ensure the full spectrum of parenting strategies are assessed. Participants also were asked to comment on whether there would be any barriers to implementing each of the strategies.

A measure of parent preferences for receiving parenting support was adapted from Metzler et al. (2012). Parents were asked to rate their preferences for seven different parenting program delivery methods using a 5-point scale ranging from 1 (not at all desirable) to 5 (extremely desirable). Parents were asked to rate how desirable each method of receiving parental support was. The current study eliminated two of the delivery modalities used by Metzler et al. (2012), namely home visits and a resource centre, as these delivery options were not considered viable for the current study. The seven delivery formats included an 8-week individual face-to-face program; an 8-week group based program; a one-off, brief parenting group which explicitly addresses the issue of sibling conflict; a self-directed parenting program where you work through exercises about how to manage sibling conflict on your own, using a workbook that includes readings and exercises; a large group parent seminar; a television program, for example, a TV show which guides parents through the key steps of how to manage sibling conflict; and a web-based program where you work through a structured online program to assist with parenting issues relevant to sibling conflict. A final question asked parents to describe any barriers to participation in a parenting program.

### **Procedure**

The survey was completed online. Advertisements, press releases, and flyers were distributed through schools, community noticeboards, social media (e.g., Facebook), print media, and word-of-mouth alerting prospective participants to the link that took them directly to the online survey site where they were provided with an electronic information and consent form and agreed to participate.

Parents were asked to complete each of the questions focussing on two of their children aged 2–10 years. If they had more than two children in that age range, they were asked to complete the questionnaires in regards to only two of their children, providing there were no more than four years separating the siblings. The participants completed the demographics measure, followed by the PEPC-SRQ, the causes of sibling behaviour problems, the strategy acceptability measure, and finally, the preference for delivery method. At the conclusion of the survey period, the de-identified data were downloaded into the SPSS statistical package for analysis and interpretation.

## **Results**

### *Preliminary Analyses.*

As the sample contained a high representation of higher income earners, a series of between groups ANOVAs were used to examine for any differences in the data resulting from income and subsequent sociodemographic status. The data were recoded into dichotomous high and low income categories. The rationale for this is that there were a total of 9 income bands recorded in the survey (as depicted in Table 3.2) and the highest band (>\$100,000) accounted for virtually half the sample. Accordingly participants who denoted a total yearly family income of less than \$100,000 were

placed in the “lower” income category, and participants denoting greater than \$100,000 yearly income were placed in the “higher” category. At the time of writing, the average Australian yearly income for people in paid employment was just under \$56,594.70 per person, per year (ABS, 2013). However, this figure does not include those unemployed, meaning that the present study is not likely to contain a fully representative sample of very low income households.

#### *Parental standards and perceptions of sibling relationships*

Parents first rated their standards by denoting how typical each of 24 behaviours is of a “very good” sibling relationship. Participants’ responses were averaged across each item. As depicted in Table 3.2, the behaviours regarded as most frequent in a very good sibling relationship were talking to each other ( $M = 4.21, SD = .76$ ), loyalty ( $M = 4.09, SD = .75$ ), kindness ( $M = 4.05, SD = .70$ ), and protectiveness ( $M = 4.00, SD = .84$ ). The behaviours rated as least frequent in a very good sibling relationship were threats ( $M = 2.07, SD = .91$ ), conflicts ( $M = 2.13, SD = .83$ ), physical aggression ( $M = 2.35, SD = .79$ ), and anger/hostility ( $M = 2.49, SD = .79$ ).

Parents then provided their perceptions of their own children’s sibling relationship by rating each of the 24 behaviours of the PEPC in terms of how frequently each occurred. As described in Table 3.3, the most frequently rated behaviours were talking to each other ( $M = 3.81, SD = .90$ ), arguments ( $M = 3.77, SD = .86$ ), trying to control each other’s behaviour ( $M = 3.75, SD = .88$ ), and fighting over objects ( $M = 3.62, SD = .85$ ). The least frequent behaviours were conflicts ( $M = 2.13, SD = 1.05$ ), threats ( $M = 2.63, SD = 1.10$ ), sharing worries or concerns ( $M = 2.81, SD = .93$ ), and jealousy ( $M = 2.95, SD = .90$ ). The most problematic behaviours were arguments ( $M = 2.55, SD = .96$ ), anger/hostility ( $M = 2.45, SD = .98$ ), physical aggression ( $M = 2.39, SD = .96$ ), and fighting over objects ( $M = 2.33, SD = .90$ ). The least problematic behaviours were talking to each other ( $M = 1.33, SD = .62$ ), teaching ( $M = 1.38, SD = .65$ ), sharing worries or concerns ( $M = 1.39, SD = .64$ ), and loyalty ( $M = 1.41, SD = .72$ ).

To compute discrepancy scores between parents’ standards and perceptions of sibling behaviour, a linear transformation of the data was performed. Scores were then recoded for each of the three subscales reflecting whether there was a positive, negative or neutral discrepancy score. For the warmth subscale, the majority of participants (54.66%) reported a positive discrepancy score indicating that they expected to see more warmth in their children’s relationship than what they did. For the agonism and rivalry subscales, the majority of participants (69.33% and 47.47% respectively) reported negative discrepancy scores, indicating they would like to see less agonism and rivalry than what they currently do.

#### *Parental self-efficacy*

Parents rated how easy it would be for them to improve each of the 24 behaviours. As per Table 3.3, the behaviours regarded as the easiest to change were talking to each other ( $M = 3.42, SD$

=.95) and teaching ( $M = 3.42$ ,  $SD = .96$ ), affection ( $M = 3.37$ ,  $SD = 1.12$ ), and comforting one another ( $M = 3.30$ ,  $SD = .97$ ). The behaviours regarded as the hardest to change were anger/hostility ( $M = 2.29$ ,  $SD = 1.07$ ), arguments ( $M = 2.30$ ,  $SD = 1.08$ ), rivalry ( $M = 2.52$ ,  $SD = 1.00$ ) and fighting over objects ( $M = 2.55$ ,  $SD = 1.07$ ).

#### *How much help required?*

Parents were asked to denote how much help they would like with each of the 24 behaviours on the PEPC-SRQ. To derive the results the data were recoded into dichotomous groups: help required (a little help + a lot of help) vs no help required. As presented in Table 3.3, the top 4 behaviours parents are seeking help with are anger/hostility (74.8%) physical aggression (74.2%), arguments (71.5%), and trying to control each other's behaviour (66.3%). The behaviours of least concern to parents were teaching (26.0%), affection (29.3%), talking to each other (30.0%), and comforting one another (30.6%).

#### *How well do children get along?*

Parents were asked to rate how well they perceived their children to get along with most respondents rating their children to get along well to extremely well ( $M = 4.45$ ,  $SD = 1.55$ ). A between groups ANOVA showed a significant difference in terms of how well lower and higher income parents perceive their children to get along,  $F(1, 307) = 7.40$ ,  $p = .007$ . It was revealed that lower income parents reported a significantly lower level of children getting along ( $M = 4.20$ ,  $SD = 1.54$ ) compared to higher income parents ( $M = 4.67$ ,  $SD = 1.53$ ). However, an inspection of mean scores indicates the both income groups rated their children, on average, as getting along "very well".

Parents were also asked whether their children were currently experiencing sibling conflict with a total of 68.7% of parents responding with "yes" and 31.3% responded with "no". There was no significant difference attributable to income status in terms of parental reports of whether their children are currently in conflict,  $F(1, 307) = .915$ ,  $p = .340$ , *ns*.

#### *Causes of Sibling Conflict*

Parents were asked to rate how likely different traits and attributes were to cause conflict in their children's relationships. As depicted in Table 3.4, the most highly rated causes of conflict were temperament of the siblings ( $M = 4.14$ ,  $SD = .86$ ), lack of problem solving skills ( $M = 4.00$ ,  $SD = .95$ ), lack of negotiation skills ( $M = 3.94$ ,  $SD = 1.00$ ), and siblings not agreeing with one another ( $M = 3.70$ ,  $SD = .99$ ). On the other hand, gender differences of siblings ( $M = 2.34$ ,  $SD = 1.22$ ), age ( $M = 2.36$ ,  $SD = 1.31$ ) and interference from parents ( $M = 2.84$ ,  $SD = 1.25$ ) were regarded as the least likely causes of sibling conflict.

A series of between groups ANOVAs were performed to examine whether perceived causes of conflict varied as a function of whether or not parents' considered their children to be in conflict.

The results were mixed, with 5 of the 11 possible causes found to differ significantly. Compared to parents who rated no conflict between the children, parents who rated their children as currently in conflict were reported more strongly that siblings disagreeing,  $F(1, 306) = 15.24, p < .001$  ( $M = 3.84, SD = .94$  vs.  $M = 3.38, SD = 1.02$ ), sibling temperament,  $F(1, 307) = 19.16, p < .001$  ( $M = 4.28, SD = .80$  vs.  $M = 3.84, SD = .91$ ), lack of negotiation skills,  $F(1, 307) = 6.33, p = .012$  ( $M = 4.04, SD = .98$  vs.  $M = 3.73, SD = 1.02$ ), and siblings too close in age,  $F(1, 304) = 15.29, p < .001$  ( $M = 2.56, SD = 1.35$  vs.  $M = 1.94, SD = 1.12$ ) were likely to cause sibling conflict. The parents who reported no conflict with their children were found to report stronger likelihood that not enough parental involvement caused sibling conflict  $F(1, 304) = 4.86, p = .028$  ( $M = 3.10, SD = 1.29$  vs.  $M = 2.75, SD = 1.33$ ).

A series of between groups ANOVAs failed to find any significant differences between the higher and lower income groups in terms of perceived causes of sibling conflict,  $F(1, 307) = .915, p = .340, ns$ .

#### *Strategy Acceptability and Likelihood of Use*

Parents were asked to rate the acceptability of 10 parenting strategies to manage sibling conflict. As described in Table 3.5, parents ranked logical consequences ( $M = 4.59, SD = .73$ ), encouraging good behaviour ( $M = 4.56, SD = .73$ ) and time-out ( $M = 4.48, SD = .80$ ) as the three most acceptable strategies. The lowest two ranked strategies were punitive measures such as lecturing ( $M = 3.20, SD = 1.10$ ) and smacking ( $M = 2.26, SD = 1.17$ ). Across the 10 strategies there were no differences in acceptability between the income groups, except for smacking  $F(1, 306) = 9.87, p = .002$ , with the lower income group reporting the strategy more acceptable ( $M = 2.47, SD = 1.21$ ) than the high income group ( $M = 2.05, SD = 1.10$ ). Overall, the strategy with the greater barriers to use was smacking (64.17%).

Parents rated the same 10 strategies for the likelihood of using them. The results indicated that parents rated the likelihood of use in the same order as acceptability with positive parenting practices such as logical consequences ( $M = 4.53, SD = .73$ ) and encouraging good behaviour ( $M = 4.35, SD = .87$ ) being more highly rated than punitive measures such as smacking ( $M = 2.16, SD = 1.18$ ) and lecturing ( $M = 3.36, SD = 1.18$ ). As per the acceptability ratings, a series of between groups ANOVAs failed to detect any significant differences between income groups for likelihood of strategy use, except for smacking  $F(1, 305) = 11.60, p = .001$ , with the low income group reporting their use of the strategy as more likely ( $M = 2.39, SD = 1.26$ ) than the high income group ( $M = 1.94, SD = 1.06$ ). However, it is noted that both groups' means for this item were low, indicating minimal likelihood of using the strategy. A series of between groups ANOVAs failed to find any significant differences between income groups in terms of perceived barriers to using each of the strategies.

### *Delivery Format*

Parents were presented with 7 different delivery formats for receiving parent support. The two most desired parenting intervention delivery formats were a web-based program ( $M = 3.46$ ,  $SD = 1.24$ ) and a one-off, brief, standalone parenting group ( $M = 3.25$ ,  $SD = 1.23$ ). As per Table 3.6, the least preferred delivery modality across the sample was an 8-week group program ( $M = 2.60$ ,  $SD = 1.24$ ). Mauchly's test indicated that the assumption of sphericity had been violated,  $\chi^2(20) = 324.19$ ,  $p < .005$ , therefore degrees of freedom were corrected using Greenhouse-Geisser estimates ( $\epsilon = .72$ ), which led to the finding of a significant effect of delivery method  $F(4.3, 1316.40) = 23.65$ ,  $p < .005$ . A follow-up series of t-tests indicated that the web-based program was also significantly more preferred compared to all other delivery modalities. Levels of significance are indicated in Table 3.6.

A series of between groups ANOVAs tested whether income level influenced preference for parenting program delivery preference. Of the 8 possible delivery modalities, the only two to show a significant difference were the 8-week individual program  $F(1, 301) = 4.68$ ,  $p = .031$  with the low income group rating the individual program as more preferable ( $M = 3.04$ ,  $SD = 1.43$ ) compared to the high income group ( $M = 2.69$ ,  $SD = 1.38$ ); and the brief, standalone parenting group  $F(1, 300) = 3.96$ ,  $p = .047$ , with the high income group rating this modality as more preferable ( $M = 3.39$ ,  $SD = 1.24$ ) than the low income group ( $M = 3.11$ ,  $SD = 1.21$ ). Just over half (52%) of surveyed parents indicated they would have no barriers to participation in a parenting program.

### *Barriers to Seeking Support*

The final item asked parents whether there were any barriers deterring them from seeking support for their children's conflict by accessing a parenting program. A total of 152 (49.35%) respondents said "yes" and 156 said "no" (50.65%), with no significant difference detected between income groups  $F(1, 306) = 1.86$ ,  $p = .174$ . An open text-entry field was provided to describe the nature of the barriers that they were experiencing.

A total of 146 parents provided a response to this item and listed 204 barriers. These responses were coded by two research assistants working on the project who independently drew common arising themes from parents' responses and married the outcome to reveal seven types of barriers. The most commonly reported barrier was parents' lack of time ( $n = 86$ ), followed by availability of childcare to allow parents to attend the parenting program ( $n = 45$ ), and accessibility in terms of where the parenting support could be accessed ( $n = 28$ ). Other barriers included family finances ( $n=19$ ), followed closely by parents' lack of desire to participate in parenting services ( $n = 16$ ) and perceived stigma associated with seeking support for parenting problems ( $n = 7$ ).



Table 3.2

*Parents' Ratings of Behaviours that Constitute the Ideal Sibling Relationship*

Behaviour	<i>M (SD)</i>	Low Income ( <i>SD</i> )	High income ( <i>SD</i> )
Talking to each other, conversations	4.21 (.76)	4.17 (.79)	4.25 (.74)
Loyalty or sticking up for one another	4.09 (.75)	4.11 (.75)	4.07 (.75)
Kindness	4.05 (.70)	4.03 (.75)	4.09 (.65)
Protectiveness – looking out for on another	4.00 (.84)	4.00 (.88)	4.00 (.79)
Helping one another	3.88 (.70)	3.85 (.73)	3.92 (.66)
Feeling proud of one another	3.84 (.84)	3.81 (.88)	3.87 (.80)
Sharing	3.84 (.61)	3.84 (.63)	3.85 (.58)
Respecting each other's property	3.78 (.79)	3.70 (.83)	3.88 (.75)*
Comforting one another	3.77 (.82)	3.74 (.83)	3.81 (.80)
Teaching (how to play a game, how to read, etc.)	3.77 (.78)	3.75 (.78)	3.79 (.77)
Affection (hug, kiss, saying "I love you," etc.)	3.76 (.90)	3.78 (.94)	3.76 (.86)
Playing together in a single activity	3.70 (.61)	3.72 (.60)	3.67 (.62)
Sharing worries or concerns	3.41 (.90)	3.40 (.95)	3.42 (.83)
Trying to control each other's behaviour	3.10 (.94)	3.14 (.97)	3.05 (.90)
Competition	3.04 (.78)	3.02 (.85)	3.06 (.68)
Arguments	3.04 (.80)	3.09 (.85)	2.97 (.75)
Rivalry	2.84 (.81)	2.83 (.87)	2.83 (.73)
Fighting over objects	2.82 (.91)	2.83 (.97)	2.79 (.83)
Fighting over territory or space	2.77 (.90)	2.81 (.98)	2.71 (.81)
Jealousy	2.69 (.77)	2.67 (.79)	2.71 (.76)

Table 3.2 (Continued)

Behaviour	<i>M (SD)</i>	Low Income ( <i>SD</i> )	High income ( <i>SD</i> )
Anger or hostility	2.49 (.79)	2.52 (.84)	2.44 (.74)
Physical Aggression (hitting, pushing, etc)	2.35 (.79)	2.39 (.85)	2.29 (.73)
Conflicts where the problem never gets worked out	2.13 (.83)	2.15 (.88)	2.11 (.77)
Threats	2.07 (.91)	2.14 (.98)	2.02 (.82)

*Note. Scale scores are 1(never) to 5(always)*

\* $p < .05$

Table 3.3

*Rank Ordering of Parents' Ratings of Sibling Behaviour and Desired Help*

Behaviour	Frequency of behaviour	How problematic	How easy to improve	Help desired
Talking to each other, conversations	3.81 (.90)	1.33 (.62)	3.42 (.95)	30.00% (.60)
Arguments	3.77 (.86)	2.55 (.96)	2.30 (1.08)	71.52% (.80)
Trying to control each other's behaviour	3.75 (.88)	2.29 (.96)	2.56 (1.07)	66.33% (.76)
Fighting over objects	3.62 (.85)	2.33 (.90)	2.55 (1.07)	62.88% (.79)
Playing together in a single activity	3.34 (.72)	1.48 (.71)	3.23 (1.01)	33.90% (.67)
Loyalty or sticking up for one another	3.33 (.94)	1.41 (.72)	3.26 (.97)	32.29% (.65)
Kindness	3.32 (.75)	1.62 (.84)	3.25 (1.05)	36.11% (.69)
Protectiveness	3.29 (.98)	1.42 (.72)	3.27 (.99)	35.42% (.63)
Fighting over territory or space	3.27 (1.01)	2.03 (.94)	2.75 (1.03)	62.88% (.76)
Sharing	3.27 (.73)	1.81 (.76)	3.03 (.97)	47.47% (.71)
Helping one another	3.26 (.77)	1.47 (.70)	3.28 (1.02)	37.72% (.67)
Anger or hostility	3.25 (.89)	2.45 (.98)	2.29 (1.07)	74.83% (.80)
Physical Aggression	3.19 (.89)	2.39 (.96)	2.55 (1.04)	74.18% (.76)
Competition	3.19 (1.00)	1.87 (.94)	2.80 (1.04)	51.36% (.74)
Rivalry	3.18 (1.01)	1.99 (.93)	2.52 (1.00)	61.07% (.77)
Respecting each other's property	3.17 (.82)	1.90 (.83)	2.88 (.99)	52.84% (.70)
Teaching (how to play a game, how to read)	3.14 (.87)	1.38 (.65)	3.42 (.96)	25.96% (.62)
Feeling proud of one another	3.13 (1.02)	1.41 (.72)	3.30 (1.01)	35.31% (.66)
Comforting one another	3.09 (.91)	1.46 (.72)	3.30 (.97)	30.56% (.66)

Table 3.3 (Continued)

Behaviour	Frequency of behaviour	How problematic	How easy to improve	Help desired
Affection (hug, kiss, saying "I love you," etc.)	3.06 (1.11)	1.52 (.81)	3.37 (1.12)	29.31% (.67)
Jealousy	2.95 (.90)	1.87 (.90)	2.68 (1.02)	56.37% (.77)
Sharing worries or concerns	2.81 (.93)	1.39 (.64)	3.15 (.97)	37.24% (.65)
Threats	2.63 (1.10)	1.85 (.95)	2.77 (1.09)	57.04% (.77)
Conflict	2.13 (1.05)	1.75 (.87)	2.89 (1.12)	51.54% (.74)

*Note.* Scale scores are 1(never) to 5(always) for frequency; 1(it's not a problem) to 4(it's a very big problem) for problem; 1(very difficult) to 5(very easy) for improvement; and 1(no help) to 3(a lot of help) for help desired.

Table 3.4

*Parents' Rank Ordering of Means Perceived Causes of Conflict*

Problem	<i>M (SD)</i>	Low income ( <i>SD</i> )	High income ( <i>SD</i> )
Temperament of the siblings	4.14 (.86)	4.14 (.96)**	4.15 (.75)**
Siblings not being able to manage conflict (dud question)	4.12 (.89)	4.05 (.86)	4.17 (.91)
Siblings not having the skills to problem solve	4.00 (.95)	3.95 (.92)	4.03 (.99)
Siblings not having the skills to negotiate	3.94 (1.00)	3.88 (.95)*	4.00 (1.05)
Siblings not agreeing with one another	3.70 (.99)	3.79 (.99)**	3.62 (.98)
Differential treatment of siblings by parent/s	3.16 (1.53)	3.14 (1.53)	3.17 (1.53)
Disagreement among parents about how to manage conflict	3.11 (1.46)	3.11 (1.49)	3.11 (1.44)
Not enough parental involvement in sibling conflict	2.86 (1.32)	2.87 (1.34)*	2.84 (1.31)
Over interference from parents	2.84 (1.25)	2.84 (1.30)	2.84 (1.20)
Siblings not old enough to act nicely towards one another	2.49 (1.22)	2.52 (1.23)	2.46 (1.22)
Siblings too close in age	2.36 (1.31)	2.40 (1.43)**	2.33 (1.19)
Gender differences among siblings	2.34 (1.22)	2.32 (1.26)	2.37 (1.19)

*Note.* \* $p < .05$ , \*\* $p < .001$

Table 3.5

*Parents' Rank Order of Mean Ratings of Parenting Strategy Acceptability, Likelihood of Use, and Perceived Barriers. Standard Deviations in Parentheses*

Strategy	Acceptability	Likelihood of use	Percentage reporting barriers to use
Back up your instruction with a logical consequence	4.59 (.73)	4.53 (.73)	16.39% (.36)
Encourage good behaviour in your child	4.56 (.73)	4.35 (.87)	19.54% (.39)
Back up your instruction with time-out	4.48 (.80)	4.22 (1.04)	22.30% (.38)
Explain the rules to your children	4.27 (.88)	4.20 (.88)	28.80% (.46)
Choose activities to teach turn taking	4.29 (.87)	4.12 (.92)	26.38% (.44)
Back up your instruction with quiet-time	4.28 (.94)	3.97 (1.17)	22.30% (.42)
Have your children play separately if they don't get along	3.94 (1.11)	3.84 (1.17)	32.79% (.47)
Get your children to practise what they should have done	3.84 (1.03)	3.39 (1.20)	25.41% (.44)
Lecture your children telling them what they have done wrong	3.20 (1.10)	3.36 (1.18)	33.99% (.47)
Give your children a smack if they misbehave	2.26 (1.17)	2.16 (1.18)	64.17% (.48)

Table 3.6

*Parents' Mean Ratings of Different Parenting Program Delivery Methods. Standard Deviations in Parentheses*

Strategy	<i>M (SD)</i>	Low income ( <i>SD</i> )	High income ( <i>SD</i> )
A web-based program	3.46 (1.24)	3.46 (1.28)	3.46 (1.21)
A one-off, brief, standalone parenting group	3.25 (1.23)*	3.11 (1.21)	3.39 (1.24) *
A television program	3.19 (1.32)**	3.07 (1.34)	3.30 (1.30)
A self-directed parenting program	3.15 (1.30)**	3.25 (1.30)	3.04 (1.28)
An 8-week individual face-to-face program	2.86 (1.41)**	3.04 (1.42)	2.69 (1.38) *
A large group parent seminar	2.65 (1.19)**	2.54 (1.30)	2.76 (1.24)
An 8-week group based program	2.60 (1.24)**	2.66 (1.24)	2.56 (1.27)

*Note.* \* $p < .05$ , \*\* $p < .001$

## Discussion

The present study surveyed parents, predominantly mothers, to gain their perspective on issues surrounding their children's sibling relationships. The findings revealed that whereas parents believe sibling relationships should ideally be characterised by warmth and positive behaviours, most parents reported an excess of agonism, rivalry and competition across their children's sibling relationships. Parents consistently reported that greater levels of help were required with changing conflictual, negative behaviours compared to positive behaviours. The results show that parents want their children to have positive, loving relationships, but require and desire assistance in dealing specifically with conflictual and adversarial behaviours.

Parents reported that sibling temperament, their capacity to negotiate and problem solve, and their inability to manage conflict as the most likely causes of conflict. This finding is at least partially consistent with previous research that has identified children's development stage, and hence their cognitive capacity, as important in explaining sibling behaviour problems (e.g., Dunn et al., 1996; Tesla & Dunn, 1992). However, parents were less likely to see themselves as the cause of conflict, with differential parental treatment and over-interference from parents as among the least likely causes. This is a particularly interesting finding because it means that parents may fail to see themselves as implicated in the causal pathway to sibling conflict, and hence don't necessarily identify any need for a parenting program to help correct the problem. However, a closer examination of the data shows a slightly more complex picture emerging.

Evidence was found linking parents' perceptions of the causes of conflict to whether they considered their children to currently be in conflict. Parents who did not have children in conflict tended to think that not enough parental involvement was more likely to cause conflict, compared to parents who had children in conflict. Regardless of whether parents had children in conflict or not, over 70% of all respondents indicated a desire for seeking help with conflictual behaviours among their children. This finding is consistent with prior research (e.g., Brody & Stoneman, 1987; Ralph et al., 2003) showing that sibling conflict is among the most significant issues parents face in raising their children and they are motivated to seek assistance with the issue. It also indicates that despite not seeing themselves as directly linked to the problem, parents are seeking support to manage the problem. Parents' interest in seeking help for their children's conflict is certainly not unjustified. Perlman and Ross (1997) showed that parental involvement in their children's relationships leads to reductions in conflict intensity and less use of oppositional behaviour, power tactics, and crying; and increases in reasoning, perspective taking, compliance, and ignoring behaviours. Moreover, parent-based interventions are among the most powerful and effective modalities of altering the trajectory of children's behaviour (Biglan et al., 2012). The key challenge,



therefore, for program developers may not necessarily be to convince parents to seek help with their children's behaviour, but to persuade them that it is their skills as parents that need to be addressed.

One of the most striking findings to emerge from the current study is that parents tend to see conflict between siblings as normal. Despite over two thirds of respondents reporting that their children currently experience sibling conflict, they also rated their children as getting along well. One possible explanation for this discrepancy is that although undesirable, parents simply see conflict among siblings as an unavoidable 'force of nature' and even siblings who get along well, will tend to experience conflict. This interpretation is consistent with the conclusions drawn by Tucker et al. (2013) and Skinner and Kowalski (2013) who argued that conflict among siblings remains a largely under-researched domain largely due to the extent to which it is seen as a "normal" part of the sibling relationship. However, the tendency for parents and researchers alike to overlook the significance of sibling conflict is problematic as it produces the dual risk of parents not paying sufficient attention to their children's sibling relationships, and researchers failing to innovate new technologies to assist parents in the process.

All eight of the positive parenting strategies were rated as highly acceptable and likely to be used, with the two negative strategies showing a clearly lower acceptability. Strategies such as logical consequences, encouraging good behaviour and time-out were highly rated, while smacking and lecturing were the lowest rated and also reported the strongest barriers to use. The only caveat to this finding was that lower income parents tended to rate smacking more highly than the higher income parents, however both groups of parents rated the strategy lowly overall. These findings are consistent with prior research examining parental perceptions of parenting strategies. For example, Morawska, Sanders, et al. (2011) found that positive parenting strategies such as 'quality time', 'talking' and 'affection' to be the most highly acceptable strategies with parents of a culturally diverse background. These findings also support the view adopted by Kramer (2010) who emphasised the importance of interventions focussing on positive and prosocial sibling interactions, rather than a reliance of eliminating conflict, in order to set siblings on a positive trajectory and to help them successfully navigate conflictual interactions.

The two most highly rated methods of receiving parenting support were online intervention and a brief, stand-alone 2hr parenting group. This finding is consistent with previous research (e.g., Metzler et al., 2012; Morawska, Sanders, et al., 2011) which has shown that lower intensity, easy-to-access intervention variants (e.g., online; one-off sessions) tend to be preferred over more intensive (e.g., 8-week group) variants. The shift towards parents preferring online or brief interventions is gaining support in the empirical literature. For example, Sanders, Baker and Turner (2012) found significant reductions in child behaviour problems and improvements in parenting practices following parents participating in a 10 module online intervention. In addition, Joachim,

Sanders, Turner (2010) showed significant improvements in child behaviour and parenting practices following a 2-hour brief discussion group focussing on a specific target behaviour. Taken together, there is both empirical and consumer-preferential support for the idea of creating a sibling conflict intervention over either an Online or brief group format.

A caveat, however, to the findings relating to program delivery was observed between low and high income respondents. Compared to respondents from the high-income band, low-income respondents reported a significantly stronger preference for intensive 8-week individual parenting support, while also reporting a lower level of preference for a brief, standalone parenting group. This is a particularly interesting finding as it is in contrast to other parent surveys that found parents from lower income settings tend to prefer non-traditional and briefer interventions (e.g., Mejia et al., 2015a; Metzler et al., 2012). One possible explanation for this finding is that lower income parents may possess a number of characteristics that increase the chances of problematic mental, emotional and behavioural health of their children (Yoshikawa, Aber, & Beardslee, 2012). These characteristics, including things like job quality, may indirectly increase the difficulties observed in their children and hence inflate parents' perceived need for more intensive support. However, in light of the inconsistent findings emerging in the literature future research is required to better understand the potential mediator and moderator effects of income over delivery preference.

The findings from the current study sit neatly with previous research that has identified the importance of parental involvement in sibling conflict. Rather than taking over and denying children with opportunities to learn, parents are seen as coaches helping children develop effective conflict strategies that they would otherwise not have learned if left to their own devices. Moreover, the current study aligns with Kramer's (2010) hypothesis that if the goal is to help children establish relationships that contain higher levels of positive behaviours, it is necessary to be intentional in efforts to help children develop the social and emotional competencies they need. Children cannot be expected to learn such skills on their own and parenting which is rejecting or dismissive can be harmful (e.g., Garcia et al., 2000; McHale et al., 2000). Accordingly, a primary implication of the current study is the need to make available interventions which proactively teach siblings positive behaviours that are conducive to positive interaction and discourage hostile and coercive behaviours.

The results of the current study should be interpreted in light of any limitations. It is necessary to note that a convenience sample was used comprising of predominately Caucasian, Australian, educated mothers, with an average of 2.6 children. Hence care needs to be taken when interpreting the findings for families who have characteristics outside of this sample (e.g., unemployed, impoverished, or very large families), and a different engagement strategy is required to boost participation rates of specific groups (i.e., fathers and diverse cultural and socioeconomic groups).

A further limitation of the current study was the skew towards higher income participants. Despite a targeted recruitment campaign towards area of diverse sociodemographics, the majority of participants were in the highest income band. One important factor exacerbating this issue was the sensitivity of the measure used. The measure comprised nine income bands. However, the highest band (AU\$100,000 or more) represents a potentially above average wage of a two-parent income household in Australia and half of the sample were categorized to belong to the highest income bands. Measurement issues aside, one possible implication of recruiting a high income sample is that participants are more likely to be well resourced and potentially also fewer barriers to treatment. Moreover, lower income households may have a different set of preferences for receiving parenting support, or may have different views on the significance of the problem at hand. However, previous research has demonstrated that parents from culturally diverse backgrounds tend to report similar levels of preferences for positive parenting programs and the strategies contained within them (e.g., Mejia et al., 2015a; Morawska, Sanders, et al., 2011). To clarify the robustness of the present findings further research is warranted with more socioeconomically and culturally diverse samples.

The low level of father participation also warrants further discussion as a limitation of the current study. Father participation is a consistent and pervasive challenge for researchers working in the parenting and family intervention domain (Fletcher, Freeman, & Matthey, 2011). Sanders, Dittman, Keown, Farruggia, and Rose (2010) conducted a survey of 933 Australian fathers and found a very low participation rate in parenting support and an even lower engagement rate of fathers from a low socioeconomic background. The relative lack of involvement of fathers in parenting research is a legitimate concern. Volling and Belsky (1992) demonstrated the value of father involvement by showing that sibling interactions were more prosocial if fathers promoted more facilitative and positive affection in their interactions with their firstborn child than if they had been intrusive or uninvolved. However, previous research investigating fathers' use of various parenting strategies (Sanders et al., 2010) suggests that if a difference between mothers and fathers was to exist it could be at the level of coercive discipline with fathers reporting a greater likelihood of using physical strategies. Nonetheless, the relative lack of father involvement is a limitation within the current study and an opportunity for future research to more closely examine the needs and preferences of fathers in managing their children's relationships.

Future research would be well advised to consider the significance of parental mood and emotional well-being as a potential moderator of effects. Parental stress, anxiety or depression could be linked to the type and severity of problems being reported by parents. The emotional state of parents may also influence their preference for intervention delivery and their willingness to undertake parenting support. Measures of parental emotional wellbeing could readily be built in to

future replications of this study along with a small incentive scheme to encourage participation from a broader and more diverse sample of participants.

The findings emerging from the current study should be considered part of a bigger picture of ongoing consumer engagement and program modification which is always regarded as a work in progress. The hallmark of the current study was the engagement of the parent voice to help provide a foundational platform for the development of a parenting intervention for sibling conflict. The ultimate goal of engaging consumers is to promote to a robust model of intervention development which is not only highly effective, but can be applied broadly and subjected to ongoing modification and empirical validation. The challenge is now over to intervention developers to harness this information and develop a tailored intervention for managing sibling conflict.

## **Chapter 4**

Adopting a Public Health Approach to Community Wellbeing: The Case for a Brief Parenting Program for Managing Sibling Conflict

*This chapter consists entirely of a paper undergoing peer-review in the Journal of Primary Prevention*

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### **Abstract**

Positive parenting programs are gaining popularity within public health policy around the world. When applied at a population-level, parenting programs hold potentially strong promise in enhancing the wellbeing of communities through improving its most important element: the family. The Triple P-Positive Parenting Program is an example of a system of prevention-focused parenting interventions that seek to improve family and community functioning. This paper provides the theoretical and empirical bases for the design of a brief variant of Triple P to promote a public health approach by improving sibling relationships. We describe the core ingredients of a public health approach to parenting support, the justification for targeting sibling relationships, the rationale for adapting an existing intervention rather than creating a new one, and provide a description of the intervention. The implications for program developers and future directions for research are discussed.

**Keywords.** Brief intervention, sibling conflict, Triple P, engagement

## **Adopting a Public Health Approach to Community Wellbeing: The Case for a Brief Parenting Program for Managing Sibling Conflict**

The family is the fundamental building block of any community. The quality of parenting that children receive influences virtually every aspect of their development (Repetti, Taylor, & Seeman, 2002; Griffin, Botvin, Scheier, Diaz, & Miller, 2000). The extent to which parents raise their children positively has significant flow-on effects for not just their individual children, but for the communities in which they inhabit (Biglan et al., 2012; Cartmill et al., 2013; Collins, Chakraborty, Murphy, & Strecher, 2009; Coren et al., 2003; Dretzke et al., 2009; Heckman, 2008; Pickering & Sanders, 2013). Thus, targeting parents as key agents of social and community wellbeing is not only important, but potentially transformational.

Traditional approaches to parent training involve working with individual families or small groups of parents. Although effective, such programs reach relatively few parents and consequently are unlikely to reduce rates of serious child-development problems related to inadequate parenting (Prinz & Sanders, 2007). In a household telephone survey of 4,010 Australian parents with a child under the age of 12 years, 75% of respondents who had a child with an emotional or behavioural problem had not participated in a parenting program (Sanders, Markie-Dadds, Rinaldis, Firman, & Baig, 2007). The benefits, therefore, derived from participating in parenting programs are seldom fully realised across communities (Prinz & Sanders, 2007). Accordingly, a public health approach to parenting support is required that has, at its core, a strategy for connecting as many families as possible to evidence-based interventions.

The public health approach to parenting support has received increasing levels of attention in research and policy settings across the past 10 years (see Sanders, 2012). In fact, some researchers have described the notion of a paradigm shift taking place. For example, Biglan et al. (2012) described the emergence of a health paradigm called ‘nurturing environments’. Nurturing environments include multiple efforts that act to prevent most mental, emotional and behavioural disorders.

This paper takes a case study approach to examining the mechanisms for building community wellbeing through a public health approach to parenting support. Specifically, we examine the process and theoretical foundations for the development of a Triple P intervention for improving sibling relationships as a potentially useful addition to the existing Triple P system. We begin by looking at the core ingredients within a public health approach and introduce the Triple P system of intervention as an exemplar of this approach. We then examine the potential value of parenting programs towards the issue of sibling relationships. The paper concludes with the presentation of the rationale underpinning the design of a brief intervention to help parents improve their children’s sibling relationships.

## **Making a Public Health Approach to Parenting Support Work**

There are four key ingredients to making a public health approach to parenting support work. Firstly, a public health approach emphasises the importance of engaging the community in the entire process of program design and delivery. As described by Pickering and Sanders (2013) intervention developers must consider how their program fits with local needs and policy, involve consumers in the design of programs, and be mindful of the cost-effectiveness of their proposed solution. Parenting programs need to be attuned to community needs, resources and preferences; and parents themselves need to be educated about the value of positive parenting programs and their availability. In this way, engagement is equally about involving “consumers” of the intervention in program design as well as communicating with those same consumers about the benefits of undertaking parenting support (see Pickering, Sanders, Hong, Penman, & Dodgson, 2015). The key outcome is better uptake of programs within the community.

A second key ingredient within a public-health approach is a self-regulatory framework (Sanders, 2012). Self-regulation is a process whereby individuals acquire the skills they need to change their own behaviour and become independent problem solvers and controllers of their own destiny (Sanders & Mazzucchelli, 2013). In so doing, they only ever acquire the skills they need, to the extent that they need them, and to the minimally sufficient amount. In the case of parents learning to change their parenting practices, the capacity to self-regulate is among the most fundamentally important skills an individual can possess. Not only does attainment of enhanced self-regulation skills enable individuals to gain a greater sense of personal control and mastery over their life deficits, self-regulation in early childhood predicts adult health, economic and social behaviour (Moffitt et al., 2011).

The capacity for a parent to self-regulate their own performance is fundamental to their capacity to promote good developmental and health outcomes in their children (Sanders & Mazzucchelli, 2013). Building self-regulation capacity and skills in children lays the foundation for the capacity for self-regulation as an adult. If parents can help children develop self-regulatory skills, they will equip them with powerful and important life tools to alter their behaviour and responses and overcome undesirable environmental, genetic, peer and other social influences throughout life.

The third ingredient is flexibility and tailoring. When a public health approach is adopted, parenting support needs to be flexible with respect to delivery formats to meet the needs that parents in the community (Mazzucchelli & Sanders, 2010). Parenting programs should not exist under a ‘one-size-fits-all-banner’. Parents, and their children, differ across many domains of functioning. Thus, multiple delivery formats are required that cover the spectrum of possibilities from intensive, face-to-face formats, through to light-touch, web-based or self-help formats. Flexible delivery of

interventions is equally important to flexible formats. Flexible delivery refers to the skill of practitioners that allows them to provide multiple exemplars to shape content to fit the needs of consumers. Mazzucchelli and Sanders (2010) argued that reluctance by practitioners to follow manuals is a key driver of failure for the uptake of empirically supported treatments. Rather, practitioners should flexibly deliver interventions to meet the diverse needs of consumers, but in such a way that the intervention is not moved beyond its evidence base.

The fourth ingredient is that parenting interventions need to be delivered in a non-stigmatising way. Parenting interventions run the risk of being perceived as for inadequate, ignorant, failed or wayward parents. To be effective, a whole-of-population approach to parenting support has to emphasise the universal relevance of parenting assistance so that the larger community of parents embraces and supports the idea of being involved in parenting programs. An important mechanism for achieving this goal is for researchers to actively engage with the community through the media about the importance of the science behind their work. Pickering et al. (2015) demonstrated how a media and communications strategy that complemented the development of a parenting program for managing sibling conflict helped foster a shift in attitudes towards the importance of parenting programs. Crucially, however, each of these ingredients must be incorporated for a public health approach to be effective. The pioneer of the public-health approach to parenting support that incorporates all of the aforementioned components is the Triple P-Positive Parenting Program.

### **Triple P as a Public Health Parenting System**

The Triple P-Positive Parenting Program (Triple P) was developed by Sanders and colleagues at The University of Queensland (Sanders, 2012). Triple P is a system of parenting support and intervention that seeks to increase parents' confidence and skill in raising their children, thereby enhancing children's developmental outcomes. Triple P adopts a public health approach to parenting support which aims to make highly reliable, evidence-based parenting support available and accessible to all parents. To achieve this, Triple P targets the multiple factors that lay the foundation for lifelong prosperity for both the individual and broader community.

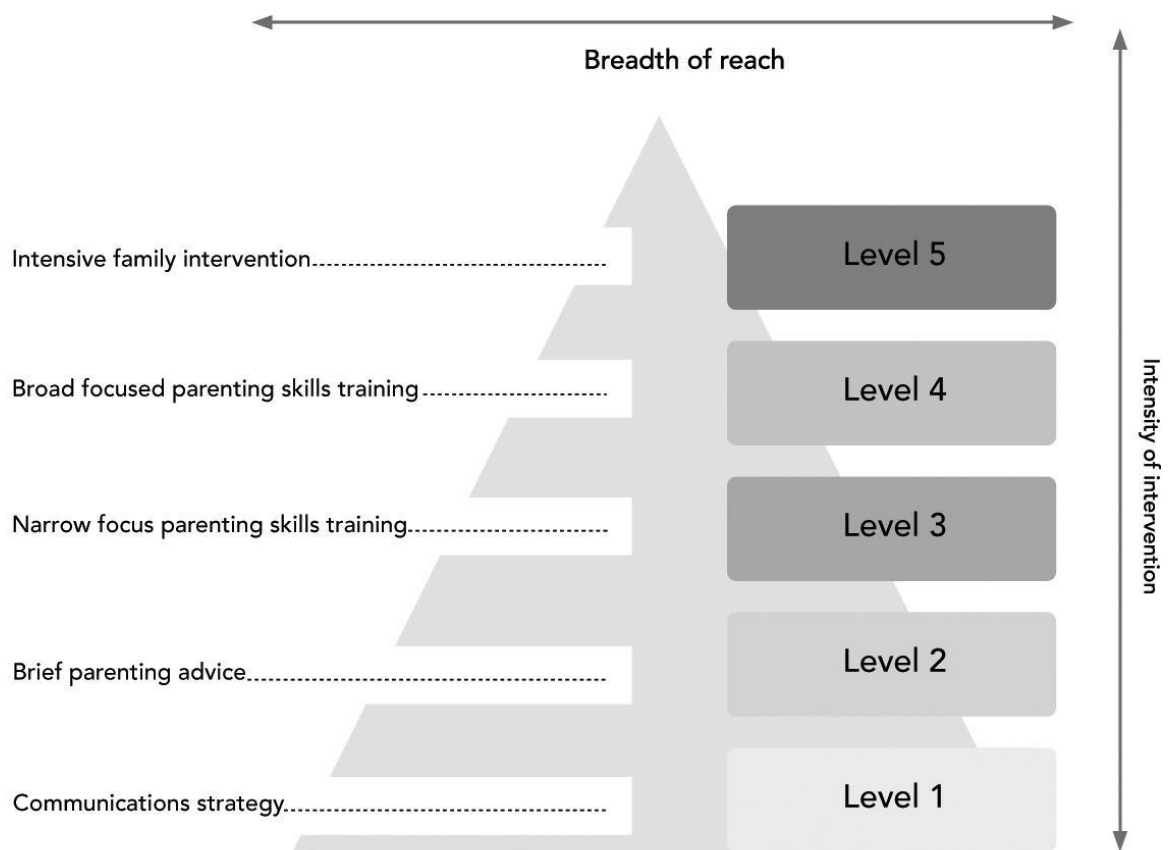
Triple P employs all four ingredients outlined in the public health framework earlier in this chapter.

Triple P targets children at five different developmental stages: infants, toddlers, pre-schoolers, primary schoolers and teenagers. Within each developmental period there are a range of delivery modalities, each of which adheres to a construct of flexibility. Programs vary from being very broad (targeting an entire population) to quite narrow (targeting only vulnerable high-risk children or parents). Triple P incorporates five levels of intervention spanning universal media messages for all parents (level 1), low intensity large group (level 2), topic-specific parent discussion groups and individual programs (level 3), intensive groups and individual programs (level 4), and more intense offerings for high-risk or vulnerable parents (Level 5). Figure 4.1 and Table 4.1 describe Triple P's



multilevel system of parenting support geared towards normalising and destigmatising parental participation in parenting education programs.

The rationale for Triple P's multi-level strategy is that there are differing levels of dysfunction and behavioural disturbance in children and adolescents, and parents have different needs and preferences regarding the type, intensity and mode of assistance they may require. The multilevel approach of Triple P follows the principle of selecting the 'minimally sufficient' intervention as a guiding principle to serving the needs of parents in order to maximise efficiency and to ensure the program becomes widely available to parents in the community. The model avoids a one-size-fits-all approach by using evidence-based tailored variants and flexible delivery options (e.g., web, group, individual, over the phone, self-directed) targeting diverse groups of parents. The multi-disciplinary nature of Triple P, combined with its flexibility, makes it well placed to address the issue of adapting an evidence-based program for a specific target behaviour such as sibling conflict.



*Figure 4.1.* The Triple P multilevel system of interventions that covers the spectrum of services of universal communications (Level 1) through to intensive, individual intervention (Level 5). (copied with permission from Sanders, 2012).

Triple P is built on more than 35 years of program development and evaluation. A recent meta-analysis of Triple P (Sanders, Kirby, Tellegen, & Day, 2014) examined 101 studies (including 62 randomised controlled trials) involving more than 16,000 families. Studies were included in the

analyses if they reported a Triple P evaluation, reported child or parent outcomes, and provided sufficient original data. In these analyses, significant moderate effect sizes were identified for children's social, emotional and behavioural outcomes ( $d = 0.47$ ), parenting practices ( $d = 0.58$ ), and parenting satisfaction and efficacy ( $d = 0.52$ ). Significant small-to-moderate effects were also found for the distal outcomes of parental adjustment ( $d = 0.34$ ) and parental relationship ( $d = 0.23$ ). Significant positive effect sizes were found for each level of the Triple P system for children's social, emotional and behavioural outcomes. These results support the effectiveness of light-touch interventions (Levels 1, 2 and 3) as affecting key parenting outcomes independently.

Table 4.1

*The Triple P System of Parenting and Family Support*

<b>Level of Intervention</b>	<b>Intensity</b>	<b>Program Variant</b>	<b>Target Population</b>	<b>Modes of Delivery</b>	<b>Intervention Methods Used</b>
<b>Level 1</b>					
Media and communication strategy on positive parenting	Very low intensity	<i>Stay Positive</i> ( <i>website example:</i>	All parents and members of the community interested in information about parenting to promote children's development and prevent or manage common social, behavioural, and emotional problems.	Website to promote engagement. May also include television programming, public advertising, radio spots, newspaper and magazine editorials.	Coordinated media and promotional campaign to raise awareness of parent issues, destigmatize and encourage participation in parenting programs. Involves electronic and print media.
<b>Level 2</b>					
Brief parenting interventions	Low intensity	<i>Selected Triple P</i> <i>Selected Teen Triple P</i> <i>Selected Stepping Stones Triple P</i>	Parents interested in general parenting information and advice or with specific concerns about their child's development or behaviour.	Series of 90-minute stand-alone large group parenting seminars; or one or two brief individual face-to-face or telephone consultations (up to 20 minutes).	Parenting information promoting healthy development or advice for a specific developmental issue or minor behaviour problem (e.g., bedtime difficulty).

Table 4.1 (Continued)

<b>Level of Intervention</b>	<b>Intensity</b>	<b>Program Variant</b>	<b>Target Population</b>	<b>Modes of Delivery</b>	<b>Intervention Methods Used</b>
<b>Level 3</b>					
Narrow focus parenting programs	Low–moderate intensity	Primary Care Triple P	Parents with specific concerns as above who require brief consultations and active skills training.	Brief program (about 80 minutes) over three to four individual face-to-face or telephone sessions); or	Combination of advice, rehearsal, and self-evaluation to teach parents to manage discrete child problems.
		Primary Care Teen Triple P			
		Primary Care Stepping Stones Triple P			
		Triple P Discussion Groups		a series of 2-hour stand alone group sessions dealing with common topics (e.g., disobedience).	Brief topic-specific parent discussion groups.

Table 4.1 (Continued)

<b>Level of Intervention</b>	<b>Intensity</b>	<b>Program Variant</b>	<b>Target Population</b>	<b>Modes of Delivery</b>	<b>Intervention Methods Used</b>
<b>Level 4</b>					
Broad focus parenting programs	Moderate	<i>Standard Triple P</i>	Parents wanting intensive training in positive parenting skills.	Intensive program (about 10 hours) with delivery options including ten 60-minute individual sessions; or five 2-hour group sessions with three brief telephone or home visit sessions; or ten self-directed workbook modules (with or without telephone sessions); or eight interactive online modules.	Broad focus sessions on improving parent-child interaction and the application of parenting skills to a broad range of target behaviours. Includes generalization enhancement strategies.
	–high intensity	<i>Group Triple P</i> <i>Self-Directed Triple P</i> <i>Standard Teen Triple P</i> <i>Group Teen Triple P</i> <i>Self-Directed Teen Triple P</i> <i>Online Triple P</i>			
		<i>Standard Stepping Stones Triple P</i> <i>Group Stepping Stones Triple P</i> <i>Self-Directed Stepping Stones Triple P</i>	Parents of children with disabilities who have, or who are at risk of developing, behavioural or emotional problems.	Targeted program involving ten 60–90 minute individual sessions or 2-hour group sessions.	Parallel program with a focus on parenting children with disabilities.

Table 4.1 (Continued)

<b>Level of Intervention</b>	<b>Intensity</b>	<b>Program Variant</b>	<b>Target Population</b>	<b>Modes of Delivery</b>	<b>Intervention Methods Used</b>
<b>Level 5</b>					
Intensive family interventions	High intensity	<i>Enhanced Triple P</i>	Parents of children with behaviour problems and concurrent family dysfunction such as parental depression or stress, or conflict between partners.	Adjunct individually-tailored program with up to eight individual 60-minute sessions (may include home visits).	Modules include practice sessions to enhance parenting; mood management and stress coping skills; and partner support skills.
		<i>Pathways Triple P</i>	Parents at risk of maltreating their children. Targets anger management problems and other factors associated with abuse.	Adjunct program with three 60-minute individual sessions or 2-hour group sessions.	Modules include attribution retraining and anger management.
		<i>Lifestyle Triple P</i>	Parents of overweight or obese children. Targets healthy eating and increasing activity levels as well as general child behaviour.	Intensive 14-session group program (including telephone consultations).	Program focuses on nutrition, healthy lifestyle and general parenting strategies.

Table 4.1 (Continued)

<b>Level of Intervention</b>	Intensity	<i>Program Variant</i>	Target Population	Modes of Delivery	Intervention Methods Used
		<i>Family Transitions Triple P</i>	Parents going through separation or divorce.	Intensive 12-session group program (including telephone consultations).	Program focuses on coping skills, conflict management, general parenting strategies and developing a healthy co-parenting relationship.

*Note.* Only program variants that have been trialed and are available for dissemination are included. Adapted from Sanders (2012). Permission obtained.

## **The Evidence for Brief Interventions**

In order to maximise reach of parenting programs, and to adopt the principle of minimal sufficiency, it is crucial to have available brief interventions that are effective at improving child behaviour outcomes. A recent systematic review by Tully and Hunt (2015) examined the effects of brief parenting interventions of child externalising problems. The researchers operationalised a brief intervention to encompass any parenting program with eight or fewer sessions. Nine studies were included in the analysis incorporating data from 836 families in five countries. All nine studies revealed significant improvements in child externalising behaviours, parenting skills and parenting self-efficacy. However, improvements on measures of parental mental health and relationship quality were less consistent. These findings point to the value of brief interventions for improving child behaviour problems, but they leave important questions remaining about the extent to which brief interventions can improve sibling and parent relationships.

The evidence for brief interventions within the Triple P system continues to evolve. In Triple P terms, brief interventions exist within levels 2 (Selected) and 3 (Primary Care) of the system. There has been a notable increase in studies examining brief format interventions such as discussion groups and seminars. This is not surprising as such interventions have the advantage of being time- and cost-effective. Sanders and Turner (2011) developed a series of brief discussion groups designed to target specific child behavioural areas. Topics include disobedience, homework, self-esteem, shopping, and managing fighting and aggression. Joachim et al. (2010) provided initial support for the discussion group concept by examining the use of the intervention for parents who are experiencing difficulty in managing children's behaviour in the supermarket. A total of 46 parents with children aged 2- to 6-years were randomised to either the brief discussion group or waitlist control. Parents in the intervention condition were taught positive parenting strategies for managing children's misbehavior in a shopping centre context. The results of participating in the intervention resulted in a reduction in disruptive problem behaviours on shopping trips, a decrease in the use of dysfunctional parenting strategies, as well as higher levels of parental confidence in dealing with children's problem behaviours.

Morawska, Adamson, Hinchliffe and Adams (2014) evaluated a brief 2-hour parent discussion group for childhood mealtime difficulties. A total of 86 parents of 2- to 5-year-old children with mealtime difficulties were randomised to receive either the brief discussion group or the waitlist control. The study revealed that the intervention improved parents' mealtime practices, children's mealtime behaviours as well as mealtime and general parental confidence. These effects were maintained at 6-months post-intervention. Tellegen and Sanders (2014) found that brief discussion formats can provide an effective intervention for parents of children with autism spectrum disorder. The researchers randomised 64 parents of children aged 2-9 years with an Autism Spectrum



Diagnosis to either a brief intervention condition or waitlist control. The participants in the brief discussion group condition reported significant short-term improvements on measures of parent-reported child behavior problems, dysfunctional parenting styles, parenting confidence, and parental stress, parental conflict, and relationship happiness. However, no significant intervention effects were found on parents' rates of depression or anxiety.

There is also evidence for the use of brief parenting interventions in a different cultural and socioeconomic background. Mejia et al. (2015b) conducted a randomised controlled trial in a low-resource setting in Panama. A total of 108 parents of children 3- to 12-years with mild-moderate behavioural difficulties were randomly assigned to the '*Dealing with Disobedience*' discussion group or a waitlist control. The results indicated that participants in the intervention condition reported an improvement in child behavioral difficulties, reduced parental stress and fewer dysfunctional parenting practices compared to the waitlist condition. Studies of the same discussion group have shown similar outcomes in settings across Australia (Morawska, Haslam, et al., 2011) and New Zealand (Dittman, Farruggia, Keown, & Sanders, 2015).

Triple P remains a dynamic and evolving system. Program developers across multiple countries are engaged in a pipeline of ongoing innovation, incorporating new ideas and technologies. The area of parenting and family research is also very broad, meaning constant evolution is required to cater for the array of potential topic areas. An example of one such underserved area is the issue of sibling relationships.

### **The rationale for a brief discussion group for managing sibling fighting and aggression**

Social learning models provide a useful platform for understanding the potential value of designing a variant of Triple P to address the issue of sibling relationships. Vygotskiï and Cole (1978) argued that learning occurs through a process whereby experts scaffold learners' abilities by providing them with opportunities to develop increasingly complex skills in a particular area. Applied to sibling relationships, parents may be seen as scaffolding their children's reasoning and perspective-taking when they intervene in their children's fights (Perlman & Ross, 1997). Children also model their parents' conflict style (Pike, Coldwell, & Dunn, 2005; Brody, 1998). Conversely, rigid or controlling parenting that discourages discussion and negotiation may be detrimental to children's emerging sense of autonomy and provide limited opportunity for children to develop important social and cognitive skills. Hence, interventions focused on training parents to teach social skills to young siblings in the home would not only promote positive, adaptive behaviour, but would capitalise on the powerful socialisation effects of parents and siblings.

Evidence from behaviourally-based parent training programs provides preliminary support for the role of parents in reducing sibling conflict. Using mixed method designs, including single case designs, behaviour therapists have successfully demonstrated how strategies such as timeout

(O'Leary et al., 1967), logical consequences (Kelly & Main, 1979), reinforcement and contingency management (Allison & Allison, 1971), and social skills training (Olson & Roberts, 1979) have all been successfully used to target sibling aggression (see Kramer 2004 for a full review).

There have been several promising intervention efforts targeting sibling conflict which have targeted children. The Fun with Brothers and Sisters program (FWSB) was developed by Kramer and Radey (1997) as a social skills social skills training package that teaches children a variety of rudimentary social skills such as perspective taking, how to initiate play appropriately, how to deal with angry feelings, and how to manage conflict. The experimental condition consisted of five, 40-minute training sessions; whereas the children in control condition received basic instructional material. Results from the study show that in comparison to the control condition, the FWSB program was associated with mothers' and fathers' reports of increased sibling warmth, decreased rivalry, stable levels of agonism and competition, fewer problematic sibling behaviours, and a reduced power differential between siblings.

Kennedy and Kramer (2008) extended the work of Kramer and Radey (1997) and examined a derivation of the Fun with Sisters and Brothers Program called the More Fun with Sisters and Brothers Program (MFWSB). The MFWSB Program is a preventive intervention which primarily departs from the initial FWSB Program by honing in on the importance of working with sibling dyads rather than an individual approach in working only with elder siblings. A dyadic approach enables both siblings to learn the target competencies with the underlying assumption that the transfer of competencies to spontaneous interactions is more likely to occur when both siblings possess the requisite competencies rather than only one. The study consisted of administering sibling dyads in the experimental condition four sessions in a lab-based playroom and a final session in the home. Findings revealed that children participating in the program needed less parental direction to control their negative emotions and subsequently refrain from negative actions toward others. The data indicated that conflict behaviours between siblings were reduced through a process of competency-based skill training, in this case aimed directly at the siblings themselves. However, child-based interventions can be expensive, time consuming and are typically reactionary, rather than preventative. An alternate, and plausibly equally viable, approach is to train parents in strategies to reducing sibling conflict, even in the absence of conflict.

An example of such an approach was provided by Feinberg et al. (2013) who conducted a randomised trial of the Siblings Are Special (SIBS) program, a group-based family intervention program for fifth graders with a younger sibling in second to fourth grades. The SIBS intervention directly targeted child and parent outcomes across 12 weekly sessions. The program aimed to improve sibling relationships through parent-centred strategies and resulted in enhanced positive sibling relationships, appropriate strategies for parenting siblings, and child self-control, social

competence, and academic performance. Completion of the program was also associated with reduced maternal depression and child internalising problems. Interestingly, the SIBS intervention failed to provide an effect for sibling conflict. However, this research is important as it does represent an attempt to focus on promoting positive behaviours among siblings, and not just reducing conflict—a mechanism described as pivotal by Kramer (2010).

Ross and Lazinski (2014) trained parents to mediate their children's conflicts and demonstrated how parent involvement in conflict behaviours not only led to a reduction in the conflict behaviour, but also a skills transfer effect was detected whereby children were able to replicate the mediation skills they experienced through their parents. This is an important finding because it points to not only the potential power of parenting intervention in alleviating conflict but also suggests that children can learn new skills through their parents' enhanced skills.

When taken together these findings converge on several key messages, namely that: (1) the sibling relationship is important to a raft of developmental outcomes; (2) parents play an important role in shaping sibling relationships; (3) parents themselves find sibling conflict particularly troublesome; (4) there are relatively few existing evidence-based interventions to reduce sibling conflict; and finally, (5) parents are well placed to meaningfully influence their children's relationships and set them on a successful developmental trajectory. Despite these factors there is still a relative paucity of research examining the best and most effective methods of improving sibling relationships. There are also growing calls from the research community to address this gap (e.g., Bowes et al., 2014; Tucker et al., 2013).

To address this shortfall Pickering and Sanders (2015b) conducted a survey of parents to inform the development of the sibling conflict intervention. In an extension of the consumer engagement model articulated earlier (Pickering & Sanders, 2013), the researchers surveyed 409 parents to gain their perspective on issues surrounding their children's sibling relationships. In designing the survey, the research team focused on embedding items that would illuminate the key targets for intervention by assessing what specific sibling behaviours parents found challenging (e.g., fighting, sharing, jealousy, arguing); which behaviours they desire most help with; what they attributed causes of sibling conflict to be (internal traits, ineffective parenting practices, skill deficiencies in their children); their views on the acceptability and utility of specific parenting strategies (e.g., time-out, spanking); how best they would like to access support (large group, small group, online); and to note any barriers they perceived in participating in a program.

The findings revealed that whereas parents believed sibling relationships should ideally be characterised by warmth and positive behaviours, most parents reported an excess of agonism, rivalry and competition across their children's sibling relationships. Parents consistently reported that greater levels of help were required with changing conflictual, negative behaviours compared to

positive behaviours. The results showed that parents want their children to have positive, loving relationships, but require and desire assistance in dealing specifically with conflictual and adversarial behaviours. Parents also reported a favourable response to the positive parenting strategies. Strategies such as logical consequences, encouraging good behaviour and time-out were highly rated, while smacking and lecturing were the lowest rated and received the strongest barriers to use. The only caveat to this finding was that lower income parents tended to rate smacking more highly than the higher income parents, however both groups of parents rated the strategy lowly overall. The two most highly rated methods of receiving parenting support were online intervention and a brief, stand-alone 2hr parenting group.

When the existing literature relating to sibling conflict, parenting interventions and the Pickering and Sanders (2015b) survey were taken into account several key ingredients for intervention were identified: first, parents identified that the primary behaviour they would like assistance with is in managing conflict and aggression, rather than emotional issues; second, despite parents' desire for reducing conflict, it is essential to have an intervention that predominately provides strategies for the promotion of positive interactions between siblings, and not just exclusively focusing on conflict; thirdly, attention must be given to delineating the causes of child behaviour problems and overcoming some potential parental myths that exist; and finally the intervention should be delivered in either a brief, easy-to-access format.

Rather than create a new intervention, the principle of flexibility and tailoring was adopted to justify the decision to adapt the existing Triple P brief discussion group for managing fighting and aggression (Sanders & Turner, 2011). The discussion group is a level 3 intervention within the Triple P system (see Table 4.1). The content and format of this existing program fits neatly with existing literature and the findings from the Pickering and Sanders (2015b) survey. Namely, it targets conflictual behaviours but does so by seeking to increase warmth and positive behaviours among children; it utilises positive parenting strategies rated as highly acceptable and usable; and is delivered via a brief, one-off 2-hour discussion group. The underlying principle of the intervention is to facilitate active discussion around a central topic (i.e., managing sibling fighting and aggression), and requires parents to develop a personalised parenting plan. The goal of the intervention is to increase positive, prosocial interactions among siblings, while simultaneously reducing the prevalence of conflictual behaviours. Parents are guided through a workbook with exercises by a trained and accredited Triple P practitioner. The format is a combination of interactive activities, video segments and group discussion. During each activity, the practitioner provides step-by-step suggestions about teaching children to play well and ideas for preventing and managing fighting and aggression. The practitioner customise the delivery of the intervention to focus on the topic of sibling relationship issues. This will be achieved by using examples of sibling

conflict, asking parents to provide examples of their own children's sibling relationship issues, and tailoring all language around sibling-related themes.

**Format.** The intervention is a 2-hour group with approximately 6 – 12 parents participating in each group. Parents are encouraged to share their experiences of dealing with aggressive and destructive behaviour and discuss some of the reasons children fight with one another. The content covers the skills that children need to be able to cooperate and get along with others. Parents are introduced to positive parenting strategies that focus on prevention. The goal is to promote strategies that prompt children to play nicely and resolve problems, deal with sibling conflict and also to manage times when children lose their temper and fight or refuse to share, or become aggressive or destructive. The discussion group gives information about conflict management by using a combination of video segments, workbook exercises, and discussion with group members. The facilitator, a trained and accredited Triple P practitioner, also refers to specific barriers as well as strategies for overcoming them. The intervention consists of eight sections as presented in Table 4.2.

The intervention commences with parents introducing themselves to the group and establishing group rules. Parents are asked to reflect on common problems they experience and how confident they feel in dealing with those problems. The practitioner facilitates discussion about why children fight and parental behaviour which may contribute to the child's behaviour. Parents are asked to list common parent traps they often fall into and are then taught how to monitor their children's behaviour. The next section focuses on preventing conflict by teaching children how to play cooperatively. Parents are instructed how to use ground rules and then asked to write down how they will be implemented in their own homes. The next section focuses on strategies for resolving conflict between their children. Parents are taught about how to intervene in their children's conflictual episodes and provided with instructions on how to use strategies such as logical consequences (e.g., removing a toy). In the final section, the rationale for quiet time and time-out is introduced and parents are asked to review each of the steps covered in the session. To conclude, the practitioner reflects on the skills presented throughout the session and participants have an opportunity to clarify any points of understanding and reflect on the key steps. Throughout the entirety of the group, the practitioner facilitates active discussion on all strategies and sections covered.

Table 4.2

*Content of the Parent Discussion Group 'Managing Fighting and Aggression'*

<b>Activity</b>	<b>Activity goals</b>	<b>Strategies and information provided</b>	<b>Exercises</b>
Setting ground rules	Establish rules for the group	Provide overview of session content and reach agreement on confidentiality	Exercise 1. Ground rules for the group
Identifying problem behaviours	Parents to identify the specific sibling behavioural problems they are experiencing	Parents watch a DVD segment and are then prompted to note which problems they experience and how confident they are in dealing with them	Exercise 2. Common behaviour problems
Identify reasons for fighting	Teaching awareness of parent traps and parents to identify personal traps	Parents watch a DVD segment and are then prompted to note parent traps they often fall into	Exercise 3: Being aware of parent traps and other reasons for fighting
Keeping track	Monitoring children's behaviour via a chart	Introduce a keeping track chart and give examples for the tally and time sample, encourage parents to use the ones provided in the workbook	
How to teach your child to play cooperatively	Parents to identify personal ground rules, teach how to encourage good behaviour	Parents watch a DVD segment and are encouraged to discuss the strategies they use at home, introduce descriptive praise and how to help children's to solve their own disputes	Exercise 4. Deciding on ground rules
How to manage sibling conflict	Learn different steps of directed discussion	Parents watch a DVD segment on managing conflict involving the following steps: tell the child the problem, ask them what they should do and get them to practise doing the right thing	Exercise 5. Using directed discussion for sibling conflict

Table 4.2 (Continued)

Activity	Activity goals	Strategies and information provided	Exercises
How to manage fighting or not sharing	Parent learn to back up instructions with consequences	Parents watch a DVD segment and introduced a checklist for managing fighting and not sharing (tell the child what to stop doing and what to do instead, back up with a consequence and return the child to the activity)	
How to manage aggression	Learn how to use quiet time and time out	Parents watch a DVD segment and are encouraged to discuss about the strategies they usually use for managing aggression	

### Implications

*Promotes a public health approach to parenting.* Consistent with the rationale outlined earlier in this paper, the brief program for managing sibling conflict fosters a public health approach to parenting support. The program achieves this through several ways: it was developed in consultation with the community through a consumer informed approach; it embraces a self-regulatory framework by providing a minimally sufficient level of intervention in the form of a one-off 2-hour program; it adapts and tailors an existing program for a specific issue rather than developing an entirely new intervention; and finally it targets a topical, highly relevant issue that virtually all parents can identify with. Thus, it provides an approachable, preventively-oriented, non-stigmatising means for parents to engage with parenting programs that are seen as being relevant to all parents, not just wayward or failing parents.

*Avoids redundant program development.* It can be tempting for evidence-based program developers to continually find reasons to create new programs. It can also stand to theoretical and empirical reason that new programs are needed to target new problems. However, this is not always necessarily the case. Every effort should be made to ensure existing programs are not able to be simply adapted to fit a new problem or need. The brief discussion group outlined here utilises an existing program that provides a more efficient and cost effective platform for intervention and draws on practitioner skill, rather than expensive program design, to customise the content.

*Enhances dissemination feasibility.* Once programs have been trialed, tested, and shown to work, they are then prepared for dissemination. In the case of evidence-based parenting programs this typically means the formalisation of a practitioner training package that accompanies the intervention. Thus, before the intervention can reach parents, practitioners must first be trained. By utilising an existing intervention and adapting it through flexible delivery, practitioners do not need to be retrained. Rather, practitioners could receive a brief ‘delivery guide’ that provides instructions and examples outlining how to adapt their existing skillset to the new target issue (e.g., sibling conflict). Removing barriers to training the practitioner workforce may result in more practitioners using the program, and more parents being likely to benefit from it. It may also mean circumventing expensive costs associated with the development of resources and training materials.

*Improves policy-level impact.* The brief format parenting intervention for improving sibling relationships has the potential to promote evidence-based policies for improving family and community wellbeing. Generally speaking, policy makers desire evidence-based, cost-effective interventions that meet community needs and expectations. The brief format intervention has the potential to meet each of these criteria. The design of the intervention was informed by the community, it responds to an identified problem in the community, and it is brief and easy-to-access. Further, programs such as Triple P are subjected to ongoing research to continually explore its efficacy and effectiveness and ensure it meets the criteria established in the revised standards of evidence in reporting prevention science (Gottfredson et al., 2015).

## **Conclusion**

Adopting a public health approach to parenting support is a potentially powerful tool for enhancing community wellbeing. To achieve this, a variety of program delivery options need to be made available. A topic specific brief parenting group for improving sibling relationships is an example of one such program that makes a potentially very useful addition within the broader system of interventions that the Triple P system comprises. Before such programs are made available they must be subjected to randomised controlled trials that evaluate their efficacy on the target population. Future research is now needed to conduct such a trial on the current intervention for the purpose of improving sibling relationships. Once the appropriate evaluations have been conducted and the required standards of evidence met, the intervention can then be considered for broader dissemination. The goal of adopting this approach is to increase the reach of parenting programs and the number of parents across a community interacting with the intervention.



## **Chapter 5**

### A Randomised Controlled Trial of the Triple P-Positive Parenting Program for Improving Sibling Relationships

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#### **Abstract**

Parents of siblings play a crucial role in the development of both the positive and negative relationships of their children. Yet, relatively few parenting programs specifically target sibling conflict. To bridge this gap, the current chapter reports the short-term outcomes of a randomised controlled trial evaluating a brief parenting intervention for managing sibling fighting and aggression. A total of 66 parents were randomised to either the Triple P brief discussion group intervention condition ( $n = 32$ ) or the waitlist control condition ( $n = 34$ ). Parents were predominately Caucasian, female, from a middle income background. Parents completed a range of self-report measures examining the quality of the sibling relationship, parenting practices, and child emotional and behavioural problems. Relative to the waitlist group, parents in the intervention group showed a significantly greater improvement on the overall measure of sibling relationship functioning and on the extent to which sibling agonism and sibling warmth was a problem. No significant differences were found on any of the other measures of individual child behaviour and parenting practices. The results are interpreted to provide preliminary support for the potential value of a brief parenting intervention for improving sibling relationships. Limitations of the study and the need for ongoing research are discussed.

**Keywords.** Randomised controlled trial, sibling conflict, Triple P

## **A Randomised Controlled Trial of the Triple P-Positive Parenting Program for Improving Sibling Relationships**

Early sibling interactions can have a profound influence over individuals' psychosocial development. Years of empirical research clearly demonstrate the myriad of ways that siblings impact each other's development (Buist et al., 2013; Kramer, 2010; Tucker et al., 2013). From a clinical perspective, the onset of social, emotional and behavioural problems attributable to problematic sibling interactions potentially can be prevented with effective early intervention (Biglan et al., 2012). Previous research identified that parents are key players in shaping the quality of their children's sibling relationships (Ross & Lazinski, 2014). The extent to which parents involve themselves in their children's quarrels, and the strategies they use when doing so, are highly predictive of sibling relationship outcomes (Brody, 1998; Smith & Ross, 2007). Moreover, the mental health and wellbeing of parents plays a pivotal role in shaping the quality of sibling relationships. Jenkins, Rasbach, Leckie, Gass, & Dunn (2012) demonstrated that maternal affective climate (e.g., mothers' depressive and anxious symptomatology) plays a role in exacerbating sibling hostility.

Despite this, few programs explicitly seek to improve children's sibling relationships through changing parents' behaviour. It is not surprising, therefore, that researchers have called for the development of parenting programs that improve sibling relationships (Bowe et al., 2014; Tucker et al., 2013), specifically by providing parents with strategies that promote the development of positive, prosocial interactions among siblings and not just focus on conflict (Kramer, 2010).

The Triple P-Positive Parenting Program is a system of parenting interventions that target various parent and child-related issues and concerns (Sanders, 2012). To date, no specific variant of Triple P focusses on the issue of improving sibling relationships. This paper reports the short-term results of a foundational randomised controlled trial evaluating a tailored version of Triple P for improving sibling relationships.

### **Why sibling relationships matter**

Siblings are among the most important developmental influences an individual can have. Such is the pervasiveness of the sibling relationship, the strongest predictor of individual well-being at age 65 among male Harvard alumni was the quality of their sibling relationships during college (G. E. Vaillant and Vaillant, 1990). Although the majority of sibling interactions are characterised by positive, prosocial, and play-oriented behaviours (Abramovitch et al., 1986), conflict between siblings can be very harmful, with potentially lifelong consequences (Skinner & Kowalski, 2013). Tucker et al. (2013) found that individuals who experienced sibling aggression in the past year experienced significantly greater mental health distress. Not surprisingly, parents often regard sibling conflict as the most prevalent behavioural problem in their families (e.g. Brody &

Stoneman, 1987; Ralph et al., 2003). Further, destructive patterns of sibling conflict are linked with a myriad of troublesome social and behavioural problems (Kramer, 2004), including bullying (Wolke, Tippet, & Dantchev, 2015).

Sibling conflict has been documented as the most prevalent form of family violence; conflict among siblings is generally more frequent and more volatile than conflict across any other family relationship (Straus et al., 2003). Sibling conflict can, and often does, rise to the level of a clinical problem (Thomas & Roberts, 2009), with some experts proposing that sibling conflict be recognised as a unique category of psychopathology (Carter & Volkman, 1992; Schroeder & Gordon, 1991). However, conflict with siblings can be constructive and equip children with valuable life skills (Bedford et al., 2000). These skills include negotiating, reasoning, tolerating, perspective taking, patience, and acceptance (Foote & Holmes-Lonergan, 2003; Shantz, 1987).

Destructive sibling conflict, on the other hand, is not useful. Aggression, agonism, coercion, negativity, and violence are all hallmarks of destructive conflict, which is associated with a range of problematic outcomes for children (Abuhatum & Howe, 2013; Garcia et al., 2000). Research demonstrates the link between sibling conflict and conduct problems in pre-schoolers (e.g., Garcia et al., 2000), and also shows how adolescent adjustment can be predicted from reports of sibling conflict, taking into account maternal and paternal hostility (Stocker et al., 2002). Sibling conflict patterns in adolescence also have been found to correlate with adult romantic relationship conflict (Shalash et al., 2013). Of concern, Skinner and Kowalski (2013) found that victims of sibling abuse tend to possess a self-induced 'norm of acceptance' relating to high levels of conflict in their sibling relationship.

The precipitation and onset of sibling conflict has been linked to many different factors in the empirical literature. The age gap between siblings (Howe & Recchia, 2006), sibling birth order (Brody et al., 1985), developmental stage (Dunn et al., 1996), parental marital status and conflict (Harrist et al., 2014), parent gender (Kramer, Perozynski, & Chung, 1999), peer influences (Bassett Greer et al., 2014), and parental favouritism (Richmond et al., 2005), have all been implicated. Jenkins et al. (2012) conducted a study of 118 families to examine the role of the family environment in predicting sibling relationship outcomes. They also were interested in whether maternal affective climate may be an explanatory factor. The study found that approximately one third of the variance in sibling relationship quality was explained by the family environment. Children in large families (more than two children) may experience different relationships with each of their different siblings. The study also demonstrated that maternal affective climate is important to the extent that depressed mothers may interact more negatively with their children and exacerbate sibling relationship difficulties.

## **The Role of Parents in Sibling Conflict**

Research clearly shows that parents regard sibling conflict as a highly prevalent behavioural problem in their families and an issue they are eager to seek assistance with (Brody & Stoneman, 1987; Kramer, 2004; Pickering & Sanders, 2015b; Ralph et al., 2003). Parental involvement in sibling interactions has been shown to have a strong bearing on sibling relationships (Kramer, 2004). For example, Howe, Aquan-Assee, and Bukowski (2001) examined the importance of mothers in influencing sibling relations to explore the extent to which mothers' attentiveness and responsivity impacted sibling behaviour. The researchers found that even when not physically present in the room, the style of maternal interaction played a powerful role in determining the quality of sibling-directed behaviour. Specifically, the greater attentive-responsiveness and active engagement the mother displayed when present, the less rivalry exhibited by the older sibling when alone with the younger sibling.

Snyder et al. (2005) noted that any preventive effort to address sibling conflict should focus on the sibling relationship relatively early in development. They also noted that sibling intervention provides a "two for one" modality of service delivery, serving as a simultaneous clinical intervention for an older sibling with significant conduct problems and as a preventive intervention for the at-risk younger sibling. Adding to this, Kramer (2010) pointed out that if the goal is to help children establish relationships that involve higher levels of positive behaviours, it is necessary to be intentional in efforts to help children develop the social and emotional competencies they need to attain this. Children may find it difficult to learn such skills on their own and parenting that is rejecting or dismissive can be harmful. On the other hand, positive parenting practices hold great potential in helping children resolve sibling conflict and improve child behaviour outcomes.

### **Existing parenting interventions**

Experimental clinical research demonstrates that structured parenting programs based on social learning models are among the most efficacious and cost-effective interventions available to promote the mental health and well-being of children (Collins et al., 2000; O'Connell, Boat, & Warner, 2009). There are some useful examples of involving parents to reduce sibling conflict. Siddiqui and Ross (2004) examined the feasibility of mothers' use of mediation strategies (e.g., reasoning, discussing emotions) to help their siblings resolve disputes. The researchers found that children responded appropriately to mediation and concluded that mediation empowered children, particularly younger siblings, to solve conflict issues. Smith and Ross (2007) examined the effects of training parents to use formal mediation procedures in sibling disputes and found that children whose parents were trained in mediation used more constructive conflict resolution strategies, compromised more often, and controlled the outcomes of conflicts more often in mediation families than in control families. Observations indicated less negativity in children's independent

negotiations of recurrent conflicts, better understanding of the role of interpretation in assessing blame, and better knowledge of their siblings' perspectives in the mediation group. The conclusions from this study were that both social and cognitive gains resulted from experience with constructive conflict resolution.

Much of the focus of parent training to date has been on reducing undesirable behaviours rather than teaching specific, positive sibling interaction skills. There are, however, a few studies which have focussed on the promotion of prosocial or positive behaviours. Tiedemann and Johnston (1992) examined the effectiveness of a 5-session parenting program in promoting sharing between young siblings. The trial consisted of 48 mothers with two young children who were randomly assigned to one of the three conditions—an individual therapy condition, a group therapy condition, or a waitlist control condition. The therapy program provided parents with information about the development of sharing and sibling relationships and taught behavioural parenting techniques to promote the development of child sharing skills. Significant positive effects of the program on observed and reported sharing behaviour were demonstrated for the individual and group therapy conditions. Behavioural observations of child behaviour improved significantly for children whose parents were in the individual condition, however observational effects were not found for parental behaviour. The results are interpreted as evidence supporting the capacity for parents being the proximal targets of intervention for improving positive behaviours among siblings.

Feinberg et al. (2013) conducted a randomised trial of the Siblings Are Special (SIBS) program, a group-format afterschool program for fifth graders with a younger sibling in second to fourth grades. The SIBS intervention directly targeted child and parent outcomes across 12 weekly afterschool sessions and three Family Nights. The program resulted in enhanced positive sibling relationships, appropriate strategies for parenting siblings and child self-control, social competence, and academic performance. Program exposure was associated also with reduced maternal depression and child internalising problems. Interestingly, however, the SIBS intervention failed to reduce sibling conflict. This research is important as it focuses on promoting positive behaviours among siblings, and not just reducing conflict.

Ross and Lazinski (2014) trained parents to mediate their children's conflicts. They demonstrated how parent involvement in conflict behaviours not only led to a reduction in the conflict behaviour, but also a skills transfer effect was detected whereby children were able to replicate the mediation skills they experienced through their parents. This is an important finding because it points to not only the potential power of parenting intervention in alleviating conflict but also suggests that children can learn new skills through their parents' enhanced skills.

## **Development of a new approach**

The Triple P-Positive Parenting Program is a system of parenting support and intervention that seeks to increase parents' confidence and skill in raising their children, thereby enhancing children's developmental outcomes (Sanders, 2012). The system encompasses five levels of intervention ranging from universal, light touch media and communications campaigns (Level 1), through to intensive individual interventions (Level 5). The unique multilevel system of interventions has been continuously evaluated across the past 30 years and multiple meta-analyses and have been conducted attesting to the positive outcomes on a range of child and parent outcomes (Sanders et al., 2014; Nowak & Heinrichs, 2008). However, there is currently no version of Triple P that specifically target sibling relationships. There is also no existing parenting intervention for improving sibling relationships that has been co-constructed with parents in the community.

To overcome this shortfall, and Pickering and Sanders (2013) argued a parenting program for sibling conflict would be strengthened if informed by the consumers from the outset. The researchers presented a model of program development involving enhanced consumer involvement to illustrate how an evidence-based parenting intervention for improving sibling relationships could be developed to meet the needs of different constituent groups, thus enhancing the acceptability and likelihood of the intervention. Extending this work, Pickering and Sanders (2015b) surveyed 409 parents of siblings who were experiencing difficulties with sibling behaviour. The authors aimed to identify parents' views on the causes of sibling conflict, the specific sibling behaviours they saw as challenging, the behaviours they would like support with, the acceptability of proposed parenting strategies, and their preferences concerning how they would like to receive parenting support. Results revealed that parents wanted to see more warmth and less agonism and rivalry in their children's relationships. Parents also consistently expressed a strong desire for assistance with managing the behavioural problems of their children. Parents reported high levels of acceptability for positive, rather than punitive, parenting strategies and showed a clear preference for parenting interventions delivered in brief, easy to access formats.

Using these findings, a decision was made to adopt and tailor an existing Triple P Brief Discussion Group for Managing Fighting and Aggression to specifically target sibling relationships (Pickering, Sanders, Hong & Nickel, 2015). This discussion group is part of a suite of topic-specific discussion groups within the level 3 range of programs (see Table 4.1). The underlying principle of adapting the managing fighting and aggression discussion group is to facilitate active discussion around a central topic (i.e., improving sibling relationships), introduce the parenting strategies, and have the parents develop a personalised parenting plan. The goal of the intervention was to increase positive, prosocial interactions among siblings, while simultaneously reducing the prevalence of conflictual behaviours. Moreover, the Triple P system of interventions has also been shown to be

effective at targeting some of the variables implicated in the onset and maintenance of sibling conflict including maternal depression and positive family environments (Sanders et al., 2014).

The Managing Fighting and Aggression discussion group has previously been evaluated in a randomised controlled trial for children with aggressive behaviour. Tully (2014) randomised 69 families to receive either standard Triple P (8 sessions), the Managing Fighting and Aggression Discussion Group with two follow up telephone calls (3 sessions), or the waitlist control. Participants were measured across three time points (pre-intervention, 6-weeks post-intervention and 6-months post-intervention) on various indices of child externalising and aggressive behaviours and parenting practices and adjustment. At post-assessment, participants in the standard Triple P condition showed significant improvements on measures of child aversive behaviour and dysfunctional parenting compared to waitlist participants. Parents in the brief intervention condition showed only one significant difference compared to waitlist at 6-week post-assessment on dysfunctional parenting. However, participants in the brief condition continued to improve across time as such that at 6-month follow-up assessment they showed comparable intervention effects to the standard condition. The results also revealed that parents who received the standard (more intensive) intervention were significantly more satisfied with the intervention compared to those that received the brief intervention. Tully concluded that briefer interventions may be less efficacious at short-term, and may need longer periods of time for effects to be revealed.

The overarching goal of the current study was to determine whether a brief discussion group parenting intervention was effective in improving sibling relationships. The primary hypothesis of the current study is that the intervention will significantly improve the sibling relationship as measured by decreasing levels of sibling agonism and increasing warmth of behaviours. Secondary hypotheses are that the intervention will improve child emotional and behavioural adjustment, and parental practices and adjustment.

## **Method**

### **Participants**

Parents were recruited through various strategies, including a media campaign, online advertisements, advertisements at childcare centres in diverse socio-economic settings, primary schools and playgroups, referrals from professionals, and word-of-mouth promotion. Parents who had participated in the Pickering and Sanders (2015b) study also were invited to register for the trial. Throughout all aspects of study recruitment, significant attention was given to promote participation to fathers and to diverse cultural and socio-demographic groups. This included hand delivering flyers and communications about the trial to schools in low sociodemographic areas and tailoring of messaging about the trial to encourage father participation.

The following criteria were used to determine study eligibility: (1) presence in the family of at least two children in the 3- to 10-year-old age range with no more than 4 years separating the two children; (2) presence of parental concern about sibling conflict; and (3) an elevated score on the agonism subscale of the Parental Expectations and Perceptions of Children's Sibling Relationship Questionnaire (PEPC-SRQ; as described below). Participants were excluded from the study if one of the following criteria were met: (1) target child has a developmental delay or intellectual disability including language and speech impairment; (2) the parents currently are seeing a professional for the child's behaviour difficulties; or (3) the parents are unable to attend for the purpose of participating in the intervention. The program was delivered in English which requires that participants are fluent in English. They also need to have internet access, because the surveys are completed online. Even though the study does not focus on social and cultural background, cultural and sociodemographic status of parents was recorded and is described. Eligibility screening was completed online and randomisation occurred after the completion of T1 data collection. When completing T1 assessment, parents were asked to nominate a target child and sibling.

An a-priori power analysis was conducted using the G\*power computer program (Faul, Erdfelder, Lang, & Buchner, 2007) to gauge the number of participants needed to detect a large effect size of .08. The analysis was based on equivalent previous studies of brief Triple P interventions yielding large effect sizes (Joachim et al., 2010; Morawska, Haslam, et al., 2011; Turner & Sanders, 2006). Power analysis revealed a total sample size of 52 (26 per condition) would be sufficient to detect a large effect size for between-groups analysis of variance (power=.80; alpha=.05).

As depicted in Figure 5.1, a total 445 participants were assessed for eligibility in the trial. Of these, 379 participants were not eligible due to failing to meet or complete the screening criteria, leaving a total of 66 participants to be randomised. A total of 32 parents were randomised intervention condition and 34 were randomised to the waitlist control. Randomisation was performed using a random number generator and was managed by an independent research assistant. Blinding to condition was not possible for either the participant or the researcher.

The mean age of participating parents was 38.13 years ( $SD = 4.23$ ), with the majority being female (95%). Parents were predominantly married (73%), identified with being ethnically Australian (70%), had a university degree (53%), employed either full-time (36%) or part-time (36%) and earned between 60,000 and 120,000 AUD (38%). Families had an average of 2.35 children ( $SD = 0.51$ ) with a target child aged 6.56 years ( $SD = 1.98$ ) and a sibling aged 5.14 years ( $SD = 1.66$ ). Most parents were in an original family setting (74%) and approximately one in four parents had participated in a parenting program recently (24%). Table 5.1 provides the



sociodemographic characteristics of the sample along with a comparison of these characteristics between groups.

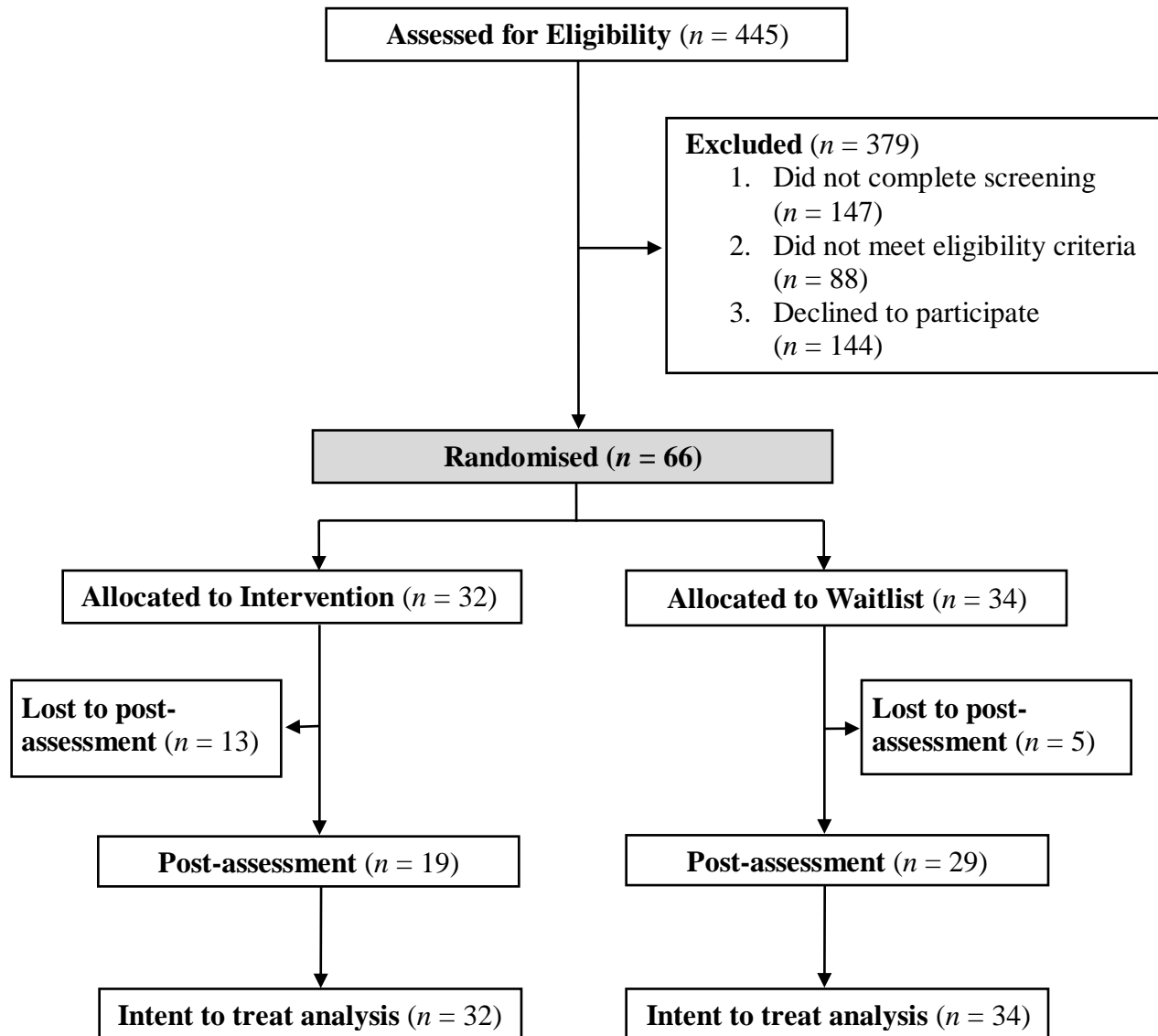


Figure 5.1. CONSORT flow diagram describing the flow of participants through the study

Table 5.1

*Demographic Characteristics of the Sample*

	Intervention ( <i>n</i> = 32)		Waitlist Control ( <i>n</i> = 34)		Difference between the conditions		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>
Age, parents (years) <sup>a</sup>	37.74	4.49	38.50	4.01	61	0.71	.48
Age, target child (years)	6.66	2.15	6.47	1.83	64	-0.38	.71
Age, sibling (years) <sup>b</sup>	4.91	1.67	5.36	1.64	63	1.11	.27
Number of children at home <sup>c</sup>	2.28	0.46	2.41	0.56	63	1.04	.30
	<i>n</i>	%	<i>n</i>	%	<i>df</i>	$\chi^2$	<i>p</i>
Gender, parent							
Male	0	0%	2	6%	2	2.96	.23
Female	32	100%	31	91%			
Not specified	0	0%	1	3%			
Gender, target child							
Male	11	34%	18	53%	1	2.31	.13
Female	21	66%	16	47%			
Gender, sibling							
Male	18	56%	24	71%	1	1.47	.23
Female	14	44%	10	29%			
Relationship to target child							
Mother	32	100%	31	91%	3	2.96	.40
Father	0	0%	1	3%			
Step-mother	0	0%	1	3%			
Other	0	0%	1	3%			
Relationship to sibling							
Mother	32	100%	32	94%	2	1.94	.38
Father	0	0%	1	3%			
Step-mother	0	0%	1	3%			
Child with a disability							
Yes	0	0%	1	3%	1	0.96	.33
No	32	100%	33	97%			

Table 5.1 (Continued)

	Intervention ( <i>n</i> = 32)		Waitlist Control ( <i>n</i> = 34)		Difference between the conditions		
	<i>n</i>	%	<i>n</i>	%	<i>df</i>	$\chi^2$	<i>p</i>
Relationship status							
Single	1	3%	1	3%	4	7.85	.10
Married	28	88%	20	59%			
Divorced/separated	2	6%	6	18%			
Defacto	1	3%	6	18%			
Widowed	0	0%	1	3%			
Family setup							
Original family	26	82%	23	68%	3	10.43	.02
Step family	1	3%	4	12%			
Sole parent family	1	3%	7	21%			
Other	5	13%	0	0%			
Ethnicity							
Australian	21	66%	25	74%	7	3.62	.82
Chinese	2	6%	1	3%			
Indian	1	3%	1	3%			
European	1	3%	0	0%			
New Zealand	2	6%	2	6%			
North American	0	0%	2	3%			
Venezuela	1	3%	0	0%			
Not specified	4	13%	4	12%			
Country							
Australia	32	100%	34	100%		n/a	
Highest Education Level							
Year 10/11	1	3%	0	0%	5	1.62	.90
Year 12	1	3%	1	3%			
Trade/ apprenticeship	2	6%	1	3%			
TAFE/ college certificate	5	16%	6	18%			
Bachelors degree	16	50%	19	56%			
Higher Degree (e.g. Masters, Ph.D.)	7	22%	7	21%			

Table 5.1 (Continued)

	Intervention ( <i>n</i> = 32)		Waitlist Control ( <i>n</i> = 34)		Difference between the conditions		
	<i>n</i>	%	<i>n</i>	%	<i>df</i>	$\chi^2$	<i>p</i>
<b>Employment Status</b>							
Full-time	9	28%	15	44%	3	2.33	.51
Part-time	12	38%	12	35%			
Homemaker	8	25%	5	15%			
Student	3	9%	2	6%			
<b>Income Level</b>							
\$60 000 or less	1	3%	7	21%	3	10.94	.01
\$60 000 - \$120 000	9	28%	16	47%			
\$120 000 - \$180 000	10	31%	7	21%			
\$180 000 or more	12	38%	4	12%			
<b>Difficulty paying bills</b>							
Yes	1	3%	1	3%	1	0.002	.97
No	31	97%	33	97%			
<b>Money left over</b>							
Enough to live comfortably	16	50%	10	29%	3	3.75	.29
Enough for essentials	14	44%	19	56%			
Not enough	2	6%	4	12%			
Not specified	0	0%	1	3%			
<b>Past participation in a parenting program</b>							
Yes	7	22%	9	26%	1	0.19	.66
No	25	78%	25	74%			

Note. <sup>a</sup> *n* = 31 for IV; <sup>b</sup> *n* = 33 for IV; <sup>c</sup> equal variance not assumed

## Measures

### Demographics measure.

Sociodemographic status including income, occupation, parent education, ethnic background, single parenting, and parent age, as well as child age, gender, and health, were assessed using the Family Background Questionnaire. This questionnaire was adapted from Zubrick et al. (2005).

### Parenting practices and child behaviour

*Parenting and Family Adjustment Scale (PAFAS)*. The PAFAS (Sanders et al., 2014) is a 30-item inventory that consists of four subscales assessing parenting practices. These subscales include the 18-item Parenting Practices subscale (e.g., I follow through with a consequence when my child misbehaves; I shout or get angry with my child), the 5-item Parental Adjustment Scale (e.g., I feel stressed or worried), the 4-item Family Relationships subscale (e.g., Our family members help and support each other), and the 3-item Parental Teamwork scale (e.g., I have a good relationship with my partner). Parents rated each item from 0 (*not at all*) to 3 (*very much*) depending on how true the statement was for their child in the past 4 weeks; some items are reverse scored. For each subscale of the PAFAS, the items are summed to provide scores, with higher scores indicating higher levels of dysfunction. Parents were asked to complete the PAFAS for both the target child and sibling. In this sample, there was good internal consistency for the practices, target child subscale ( $\alpha = .83$ ), the practices, sibling subscale ( $\alpha = .74$ ), the adjustment target child subscale ( $\alpha = .76$ ), the adjustment sibling subscale ( $\alpha = .72$ ), and the teamwork target child subscale ( $\alpha = .82$ ); and satisfactory internal consistency for the family relationship target child subscale ( $\alpha = .66$ ), the family relationship sibling subscale ( $\alpha = .56$ ), and the teamwork sibling subscale ( $\alpha = .60$ ). See Appendix A for the PAFAS and scoring key.

*Child Adjustment and Parent Efficacy Scale (CAPES)*. The CAPES (Morawska, Sanders, Haslam, Filus, & Fletcher, 2014) is a 27-item scale that assesses a child's emotional and behavioural problems and parental confidence. The Behaviour Problems subscale is composed of 24 items that assess behaviour concerns (e.g., My child rudely answers back to me) and behavioural competencies (e.g., My child accepts rules and limits). The Emotional Problems subscale is composed of 3 items that assess emotional adjustment (e.g., My child worries). Parents rated each item from 0 (*not true at all*) to 3 (*true most of the time*) depending on how true the statement was for their child in the past 4 weeks; some items are reverse scored. Items are summed to yield a total intensity score (range of 0–81), behaviour score (range of 0–72), and an emotional maladjustment score (0–9), where higher scores indicate higher levels of problems. The Confidence Scale is composed parent's confidence ratings in managing their child's emotional and behavioural problems for 19 items from the overall scale. Parents rated each item from 1 (*certain I can't do it*)

to 10 (*certain I can do it*) depending on how confident they are in successfully dealing with their child's behaviour. The possible range for this scale is 19–190, with higher scores indicating greater levels of parent efficacy. Parents were asked to complete the CAPES for both the target child and sibling. In this sample, there was good internal consistency for the confidence, target child subscale ( $\alpha = .91$ ) and the confidence, sibling subscale ( $\alpha = .94$ ); the emotional, sibling subscale ( $\alpha = .79$ ), the behavioural, target child subscale ( $\alpha = .85$ ), the behavioural, sibling subscale ( $\alpha = .78$ ), the total, target child subscale ( $\alpha = .85$ ), and the total, sibling subscale ( $\alpha = .80$ ); and satisfactory internal consistency for the emotional, target child subscale ( $\alpha = .64$ ). See Appendix B for the CAPES and scoring key.

### **Sibling conflict**

*How do you manage children's conflict measure (HMCC)?* The HMCC (Kramer & Washo, 1999) is a three-part questionnaire that assesses parental expectations about the effectiveness of strategies for managing to children's verbal and physical sibling conflicts. The questionnaire seeks to elicit from parents how frequently their children get into conflict and how often parents deploy various strategies to deal with their children's conflict. First, parents rated how frequently their children engage in physical and verbal conflicts on both weekdays and weekends on a 5-point Likert scale ranging from 1 (*none*) to 5 (*10 or more times*) and also how intense their children's physical and verbal conflicts get on weekdays and weekends on a 7-point Likert scale ranging from 1 (*very mild*) to 7 (*very heated*). Next, parents used a 3-point Likert scale ranging from 1 (*never*) to 3 (*often*) to rate how often they used 26 possible conflict management responses to resolve both verbal and physical sibling conflicts within the past 2 weeks. Finally, parents used a 3-point Likert scale ranging from 1 (*very ineffective*) to 3 (*very effective*) to rate how effective they believe each of the 26 conflict management responses were for resolving both verbal and physical conflicts. The 26 responses mapped on to three distinct types of parental involvement: (1) child-centred involvement, (2) parental control, and (3) passive non-intervention. An example of child-centred strategy is "asked the children to explain their sides of the conflict and worked with them to reach a solution they both agreed on"; an example of parental control strategy included "told the children to stop fighting and be nice to each other"; and finally, an example of passive non-intervention strategy was "ignored the conflict-kept on doing what I was doing" or "decided not to go in and to let the children resolve the conflict on their own". In this sample, there was good internal consistency for the frequency CCS, physical subscale ( $\alpha = .75$ ), the frequency CCS, verbal subscale ( $\alpha = .71$ ), the frequency PC, physical subscale ( $\alpha = .80$ ), the frequency PC, verbal subscale ( $\alpha = .70$ ), the efficacy PNI, physical subscale ( $\alpha = .77$ ), and the efficacy PNI, verbal subscale ( $\alpha = .77$ ); and mixed levels of internal consistency for the frequency PNI, physical subscale ( $\alpha = .68$ ), the frequency PNI, verbal subscale ( $\alpha = .56$ ), the efficacy CCS, physical subscale ( $\alpha = .68$ ), the efficacy CCS, verbal

subscale ( $\alpha = .67$ ), the efficacy PC, physical subscale ( $\alpha = .63$ ), and the efficacy PC, verbal subscale ( $\alpha = .61$ ). See Appendix C for the HMCC and scoring key.

*The Parental Expectations and Perceptions of Children's Sibling Relationship Questionnaire (PEPC-SRQ)*. The PEPC-SRQ (Kramer & Baron, 1995) uses 27 typical sibling behaviours (e.g., fighting, teasing, sharing) to elicit parents' perceptions of their children's sibling relationships across three domains: agonism, rivalry, and warmth. Parents rated each of the 27 items on four subscales: (1) how frequently each of the behaviours occurs in their children's relationship (frequency)? This item is scored on a 1 (*never*) to 5 (*always*) scale; (2) how much the behaviour is a problem (problematic)?; This item is scored on a 1 (*it's not a problem*) to 4 (*it's a very big problem*) scale; (3) if this is a problem how easy would it be to improve (easy fix)? This item is scored on a 1 (*very difficult*) to 5 (*very easy*) scale; and (4) how much help is needed with the problem (want help subscale)? This item is scored on a 1 (*no help*) to 3 (*a lot of help*) scale. The final question in the PEPC-SRQ asks parents to rate how well their children get along on a 1 (*very poorly*) to 7 (*extremely well*) scale. In this sample, there was good internal consistency for the warmth, problematic subscale ( $\alpha = .93$ ) and the warmth, want help subscale ( $\alpha = .91$ ); good internal consistency for the agonism, frequency subscale ( $\alpha = .84$ ), the warmth, frequency subscale ( $\alpha = .85$ ), the agonism, problematic subscale ( $\alpha = .86$ ), the rivalry, problematic subscale ( $\alpha = .70$ ), the agonism, easy fix subscale ( $\alpha = .87$ ), and the warmth, easy fix subscale ( $\alpha = .90$ ); and satisfactory internal consistency for the rivalry, frequency subscale ( $\alpha = .69$ ), the rivalry, easy fix subscale ( $\alpha = .68$ ), the agonism, want help subscale ( $\alpha = .68$ ), and the rivalry, want help subscale ( $\alpha = .66$ ). See Appendix D for the PEPC-SRQ and scoring key.

## **Design**

The design of the study was a two-arm randomised controlled trial involving two conditions (intervention vs. waitlist control) assessed at two time points (T1, pre-intervention, and T2, 4 to 6-week post-intervention). Follow up data collection was planned for 6-months post intervention follow up. However, the collection of these data fall outside the scope and timeframe of the current body of work.

## **Procedure**

The study was cleared in accordance with The University of Queensland's ethical review committee. All prospective participants provided informed consent and then underwent an online screening assessment. All questionnaires were administered online using Qualtrics software. Once eligibility was confirmed, participants were then immediately asked to complete the first wave of assessments (pre-intervention). Once the pre-intervention data was completed, a member of the research team contacted the parent to confirm whether they had been randomised to the intervention or waitlist control condition.

Parents in the intervention condition were invited to attend the next available parenting group. Groups took place when at least five parents were able to attend. Group size ranged from 3 to 12 parents, as some parents cancelled at the last minute. Cancellation parents were reassigned to the next available group, typically within the same week. The groups were held at two locations in Brisbane, one at Parenting and Family Support Centre Clinic at the The University of Queensland, and the other at a primary school on the inner south side of Brisbane. Four to six weeks after participating in the group, parents in the intervention condition were recontacted to complete the post-intervention measures. Participants in the waitlist condition were contacted 4 to 6 weeks after completing T1 to complete their T2 measures. During this time, participants in the waitlist group were able to access whichever services they usually would. Once participants in the waitlist condition have completed their 6-month follow-up assessment (not included in this thesis) they were offered access to the parenting discussion group.

### **Intervention**

The intervention was a 2-hour parenting program called ‘Triple P brief discussion group for managing fighting and aggression’ (Sanders & Turner, 2011). A feature of the discussion group is that emphasis is placed on encouraging positive, prosocial behaviour, rather than focusing on conflict. Parents were encouraged to share their experiences of dealing with aggressive and destructive behaviour and discuss some of the reasons children fight. Parents received a parents’ workbook, ‘Managing fighting and aggression’ that outlined the content, activities, examples and exercises the group draws on. The content of the discussion group (previously described in Table 4.2) covers the skills that children need to be able to cooperate and get along with others. It then introduces positive parenting strategies to help prevent problems by teaching children to play nicely and resolve problems, deal with sibling conflict and also to manage those times when children lose their temper and fight or refuse to share, or become aggressive or destructive. The discussion group was designed to give assistance to parents in order to prevent and manage their children’s conflict effectively. The discussion group provided information about conflict management and also introduced parenting strategies which enable parents to implement prevention and management plans appropriately by using a combination of video segments, workbook exercises, and discussion with group members. The facilitator also referred to specific barriers to following the management plan as well as strategies for overcoming them.

*Tailoring content to sibling relationship:* The discussion group was originally designed to manage general fighting and aggression in children, not sibling fighting and aggression directly. Accordingly, the facilitator adapted and tailored the content of the discussion group to focus specifically on reducing sibling fighting. To achieve this, the facilitator exclusively used examples that related to common sibling relationship problems (fighting over a toy, not sharing, provoking



one another). Parents were encouraged to share examples and experiences that related specifically to the issue of sibling conflict. For example, in setting goals for change, parents were asked to set goals relating to improved sibling relationships. When sharing examples of problem behaviours, parents were prompted to share sibling relationship difficulties.

### **Facilitator training and characteristics.**

The same facilitator, the author of this dissertation, delivered each parenting group. Prior to the study, the facilitator had been trained and accredited as a Triple P practitioner. The facilitator had a bachelor's degree in psychology and held a long-term position within the research centre, which develops program materials and resources for the Triple P system. The facilitator undertook regular supervision and mentoring sessions with a senior clinical psychologist, who also was an advisor to this dissertation.

### **Protocol adherence**

To ensure intervention integrity, the facilitator followed a standardised manual. Parents were provided with a workbook and all sessions were strictly enforced to run for the 2hr period. Independent observers assessed treatment fidelity and completed protocol adherence checklists for each session.

The facilitator was assessed to have completed 100% of checklist items of content across all discussion groups. There was no record of new content being introduced in the sessions. Observers also rated the facilitator on process quality, indicating the presence of characteristics such as explaining the purpose of the session, tailoring the session content to the needs of parents, and use of good questioning, listening, and non-verbal techniques. The facilitator displayed an average of 97% of these characteristics in each session.

### **Data analyses**

Analyses were conducted using multiple analysis of covariance (MANCOVA) and univariate analysis of covariance (ANCOVA) with T2 scores entered as dependent variables and T1 scores as covariates. Analyses were conducted on sets of conceptually and theoretically related variables including: (1) sibling relationship quality (PEPC frequency subscales, HMCC frequency and intensity subscales for both weekdays and weekends); (2) parent perceptions of difficulty in managing sibling relationships (PEPC problem subscales, PEPC overall); (3) parent confidence in improving sibling relationships (PEPC easy fix and want help subscales); (4) parenting practices in managing sibling relationships (HMCC frequency and efficacy of strategies subscales); (5) child emotional and behavioural adjustment (CAPES emotional and behavioural subscales); (6) parenting practices for child behaviour (PAFAS parenting subscale, CAPES total scale); and (7) parental adjustment (PAFAS adjustment, relationship and teamwork subscales. All tests were two-tailed and

the critical alpha-level of .05 was chosen and SPSS (Statistical Package for the Social Sciences) version 22 was used to conduct all analyses.

## Results

### Preliminary analyses

Preliminary analyses were conducted to test for equivalence of groups at pre-intervention on all demographic and outcome variables. Chi-square tests were used for categorical variables and independent groups t-tests for continuous variables (see Table 5.1).

Chi-square analyses on demographic data revealed two significant differences between groups at baseline. The intervention and waitlist conditions were found to differ significantly in terms of income  $\chi^2(3) = 10.94, p = .01$ , and family structure  $\chi^2(3) = 10.94, p = .01$ . Inspection of the data indicated the intervention condition had a higher number of parents in the highest income band, and a higher number of sole parent families in the waitlist control.

A series of independent groups t-tests revealed three significant differences between groups on T1 outcome measures. Analysis revealed a significant difference between groups on the PAFAS teamwork subscale for the target child,  $t(64) = 2.11, p = .04$ , PAFAS parental adjustment subscale,  $t(64) = 2.12, p = .04$ , and the PAFAS family relationship subscale,  $t(64) = 2.24, p = .03$ . In each instance, the waitlist control group reported significantly greater problems with higher mean scores evident at T1 assessment.

### Attrition

There was approximately 21% missing data at T2. Missing data analysis was conducted using Little's missing completely at random test (MCAR; Little, 1988), where the data were found to be missing completely at random,  $\chi^2(31555) = 21.59, p = 1.000$ . Missing values were subsequently calculated using expectation-maximization (Dempster, Laird, & Rubin, 1977).

### Sibling conflict measures

Table 5.2 presents the means, standard deviations, multivariate and univariate  $F$  values for each of the variables included in the main analysis for examining the sibling relationship. A significant overall multivariate intervention effect was found,  $F(11, 43) = 2.17, p = .03$ , indicating an improvement in the sibling relationship at T2 for the intervention condition compared to the waitlist. Follow up univariate analyses failed to detect significant differences between groups on any of the specific subscales, including the PEPC frequency of agonism subscale,  $F(1, 53) = 0.71, p = .40$ , and the PEPC frequency of warmth subscale,  $F(1, 53) = 0.21, p = .65$ .

Table 5.3 presents the means, standard deviations, and univariate  $F$  values for the analysis of parents' perceptions of problem and ease of resolving conflict. A significant overall multivariate intervention effect was found for parents' perceptions of problematic sibling conflict,  $F(4, 57) = 2.60, p = .05$ , indicating that participants in the intervention condition reported improvements in

their perception of managing sibling relationship difficulties. Follow-up univariate analyses revealed a significant difference between groups at T2 on the PEPC agonism problem subscale,  $F(1, 60) = 4.40, p = .04$ , as well as the PEPC warmth problem subscale,  $F(1, 60) = 4.67, p = .03$ . This indicated that compared to the waitlist group, the intervention group showed a significant improvement in their perception of the problem of agonism and warmth respectively. Significant differences were not detected for the PEPC rivalry problem subscale,  $F(1, 60) = 2.07, p = .16$ , or the overall measure of how well siblings get along,  $F(1, 60) = 0.04, p = .84$ . There was also no significant overall multivariate intervention effect for parents' perception of ease of resolving conflict,  $F(6, 53) = 0.57, p = .75$ .

Table 5.2

*Intervention Effects for Sibling Conflict*

	Intervention ( <i>n</i> = 32)				Waitlist Control ( <i>n</i> = 34)				Univariate ANCOVA results for time x condition interaction				
	Pre- intervention		Post- intervention		Pre- intervention		Post- intervention						
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>df</i> <sub>1</sub>	<i>df</i> <sub>2</sub>	<i>p</i>	<i>d</i>
Overall, sibling relationship <sup>a</sup>									2.17	11	43	.03*	
PEPC-SRQ, agonism, frequency	5.89	1.42	5.57	0.86	6.30	1.54	5.97	1.63	0.71	1	53	.40	0.01
PEPC-SRQ, rivalry frequency	6.09	2.11	5.44	1.16	5.71	1.91	5.44	1.78	0.07	1	53	.79	0.19
PEPC-SRQ, warmth, frequency	4.74	1.36	4.58	0.77	4.68	1.08	4.67	1.18	0.21	1	53	.65	0.12
HMCC, verbal frequency, weekdays	3.03	0.97	2.59	0.61	3.06	1.04	2.85	1.08	0.19	1	53	.67	0.23
HMCC, verbal frequency, weekends	4.03	1.38	2.81	0.54	3.91	1.00	3.24	1.05	1.97	1	53	.17	0.45
HMCC, phys frequency, weekdays	2.16	0.57	1.91	0.30	2.32	0.81	1.97	0.76	0.14	1	53	.71	0.15
HMCC, phys frequency, weekends	2.75	1.24	2.00	0.36	2.68	1.09	2.21	0.91	0.36	1	53	.55	0.24
HMCC, verbal intensity, weekdays	4.88	1.04	4.00	0.92	5.09	1.29	4.21	1.53	0.01	1	53	.93	0.01
HMCC, verbal intensity, weekends	3.75	1.76	4.69	1.03	4.53	1.66	4.88	1.68	0.001	1	53	.97	0.34
HMCC, phys intensity, weekdays	4.00	1.72	3.34	0.79	4.12	1.81	3.21	1.53	2.02	1	53	.16	0.14
HMCC, phys intensity, weekends	3.59	1.90	3.88	0.83	3.82	1.91	3.97	1.77	0.63	1	53	.43	0.07

*Note.* *df*<sub>1</sub> = degrees of freedom, hypothesis; *df*<sub>2</sub> = degrees of freedom, error; \* *p* < .05; <sup>a</sup>MANCOVA results

Table 5.3

*Intervention Effects for Parent Perceptions of Difficulty in Managing Sibling Relationships*

	Intervention ( <i>n</i> = 32)				Waitlist Control ( <i>n</i> = 34)				Univariate ANCOVA results for time x condition interaction				
	Pre- intervention		Post- intervention		Pre- intervention		Post- intervention						
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>df</i> <sub>1</sub>	<i>df</i> <sub>2</sub>	<i>p</i>	<i>d</i>
Parent perception of problem in managing sibling relationship <sup>a</sup>									2.60	4	57	.05*	
PEPC-SRQ, agonism, problem	3.73	1.70	3.01	0.96	3.95	1.43	3.55	1.61	4.40	1	60	.04*	0.20
PEPC-SRQ, rivalry, problem	3.26	2.18	2.42	1.26	2.92	1.71	2.55	1.78	2.07	1	60	.16	0.24
PEPC-SRQ, warmth, problem	2.64	1.61	1.12	0.71	1.96	1.39	1.32	0.98	4.67	1	60	.03*	0.59
PEPC-SRQ, get along	2.44	1.64	4.13	0.87	2.97	1.57	4.32	1.41	0.04	1	60	.84	0.21
Parent perception of ease of resolving sibling conflict <sup>a</sup>									0.57	6	53	.75	
PEPC-SRQ, agonism, easy fix	3.27	1.42	3.56	1.03	3.33	1.58	3.23	1.77	2.05	1	58	.16	0.26
PEPC-SRQ, rivalry, easy fix	3.39	1.60	4.35	1.13	4.09	1.72	4.22	1.73	1.13	1	58	.29	0.50
PEPC-SRQ, warmth, easy fix	3.70	1.31	4.96	0.89	4.13	1.15	4.90	1.39	2.05	1	58	.16	0.40
PEPC-SRQ, agonism, want help	3.37	1.13	2.53	0.92	3.45	1.09	2.95	1.32	3.09	1	58	.08	0.31
PEPC-SRQ, rivalry, want help	2.86	1.39	2.32	1.23	2.60	1.34	2.35	1.26	0.72	1	58	.40	0.22
PEPC-SRQ, warmth, want help	2.29	1.07	1.17	0.84	1.90	0.94	1.29	0.82	2.50	1	58	.12	0.51

Note. *df*<sub>1</sub> = degrees of freedom, hypothesis; *df*<sub>2</sub> = degrees of freedom, error; \* *p* < .05; <sup>a</sup>MANCOVA results

Table 5.4 presents the means, standard deviations, and univariate  $F$  values for the analysis parenting practices in relation to the management of sibling conflict. No significant multivariate or univariate effects were detected across any of the outcome scales,  $F(12, 41) = 1.45, p = .18$ . Inspection of mean scores indicate the intervention group tended to improve in the use of child-centred strategies, while the waitlist group remained constant or had slightly lower means. However, these differences were not significant.

### **Child and Parent measures**

Table 5.5 presents the means, standard deviations and univariate  $F$  values for the analysis of individual target child and sibling emotional and behavioural adjustment. No significant intervention effects were detected,  $F(4, 57) = 0.97, p = .43$ .

Tables 5.6 provides the means, standard deviations, and univariate  $F$  values for the measures of parenting practices, adjustment and confidence. No significant intervention effects were found on each of the measures respectively,  $F(2, 61) = 0.29, p = .75$ ,  $F(6, 53) = 0.98, p = .45$ , and  $F(2, 61) = 0.35, p = .70$ . Inspection of mean scores indicates that both the intervention and waitlist groups tended to report improvements across most domains of child emotional and behavioural adjustment as well as measures of parenting practices, adjustment and confidence.

Table 5.4

*Intervention Effects for Parenting Practices for Sibling Conflict*

	Intervention ( <i>n</i> = 32)				Waitlist Control ( <i>n</i> = 34)				Univariate ANCOVA results for time x condition interaction				
	Pre- intervention		Post- intervention		Pre- intervention		Post- intervention		<i>F</i>	<i>df</i> <sub>1</sub>	<i>df</i> <sub>2</sub>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>					
Parenting practices for sibling conflict <sup>a</sup>									1.45	12	41	.18	
HMCC, frequency CCS, verbal	17.59	3.05	18.78	1.95	19.03	3.03	18.38	3.42	0.45	1	52	.50	0.60
HMCC, frequency CCS, physical	17.31	3.21	18.38	2.49	18.71	3.33	17.15	3.87	2.95	1	52	.09	0.80
HMCC, frequency PC, verbal	27.56	3.36	27.75	1.83	27.91	3.60	28.26	3.78	0.08	1	52	.77	0.05
HMCC, frequency PC, physical	29.34	4.46	27.81	3.18	29.91	4.22	28.88	4.77	0.67	1	52	.42	0.12
HMCC, frequency PNI, verbal	6.03	1.09	5.97	1.03	5.59	1.40	5.74	1.02	0.01	1	52	.94	0.17
HMCC, frequency PNI, physical	5.44	1.44	5.41	1.34	4.97	1.53	4.65	1.20	2.79	1	52	.10	0.20
HMCC, efficacy CCS, verbal	16.34	2.47	18.84	1.51	17.53	3.31	18.68	3.79	0.61	1	52	.44	0.46
HMCC, efficacy CCS, physical	16.34	2.31	18.13	1.36	17.03	3.53	17.62	3.65	1.15	1	52	.29	0.40
HMCC, efficacy PC, verbal	27.06	4.08	29.72	2.52	27.76	3.57	29.62	3.47	0.26	1	52	.61	0.21
HMCC, efficacy PC, physical	27.06	3.89	29.31	2.38	27.65	3.70	29.21	3.53	0.42	1	52	.52	0.18
HMCC, efficacy PNI, verbal	5.50	1.74	5.63	1.31	5.12	1.43	5.74	1.46	0.79	1	52	.38	0.31
HMCC, efficacy PNI, physical	5.38	1.13	4.88	1.48	5.21	0.95	4.56	1.42	0.15	1	52	.70	0.14

*Note.* *df*<sub>1</sub> = degrees of freedom, hypothesis; *df*<sub>2</sub> = degrees of freedom, error; <sup>a</sup>MANCOVA results

Table 5.5

*Intervention Effects for Child Behaviour Problems*

	Intervention ( <i>n</i> = 32)				Waitlist Control ( <i>n</i> = 34)				Univariate ANCOVA results for time x condition interaction				
	Pre- intervention		Post- intervention		Pre- intervention		Post- intervention						
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>df</i> <sub>1</sub>	<i>df</i> <sub>2</sub>	<i>p</i>	<i>d</i>
Child behaviour problems <sup>a</sup>									0.97	4	57	.43	
CAPES, emotional, target child	3.53	2.11	2.84	0.92	3.56	2.09	3.21	1.74	0.88	1	60	.35	0.16
CAPES, emotional, sibling	3.28	2.40	3.13	1.88	2.91	1.85	2.50	1.76	1.14	1	60	.29	0.12
CAPES, behavioural, target child	36.66	10.25	29.25	5.63	33.47	9.70	29.32	9.33	0.10	1	60	.75	0.33
CAPES, behavioural, sibling	28.19	10.88	23.91	7.37	28.71	9.12	25.44	7.12	1.51	1	60	.22	0.10
CAPES, total, target child	40.19	11.20	32.09	5.80	37.03	10.82	32.53	10.12	0.20	1	60	.65	0.33
CAPES, total, sibling	31.47	12.10	27.03	8.49	31.62	9.99	27.94	7.55	0.76	1	60	.39	0.07

*Note.* *df*<sub>1</sub> = degrees of freedom, hypothesis; *df*<sub>2</sub> = degrees of freedom, error; <sup>a</sup>MANCOVA results



Table 5.6

*Intervention Effects for Parenting Practices, Adjustment, and Confidence*

	Intervention ( <i>n</i> = 32)				Waitlist Control ( <i>n</i> = 34)				Univariate ANCOVA results for time x condition interaction				
	Pre-intervention		Post-intervention		Pre-intervention		Post-intervention		<i>F</i>	<i>df</i> <sub>1</sub>	<i>df</i> <sub>2</sub>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>					
Parenting practices <sup>a</sup>									0.29	2	61	.75	
PAFAS, practices, target child	21.75	6.86	13.72	4.26	18.50	6.90	13.82	4.00	0.57	1	62	.45	0.49
PAFAS, practices, sibling	17.09	6.25	12.75	4.71	17.21	5.67	12.85	3.92	0.23	1	62	.63	0.00
Parenting adjustment <sup>a</sup>									0.98	6	53	.45	
PAFAS, adjustment, target child	6.66	2.75	5.69	1.71	6.06	2.81	5.65	2.82	0.65	1	58	.42	0.20
PAFAS, adjustment, sibling	5.97	2.92	5.09	1.80	7.44	2.73	5.24	2.70	0.76	1	58	.39	0.47
PAFAS, fam relationship, target child	3.50	1.93	3.63	1.66	3.41	2.15	3.65	2.04	<.001	1	58	1.00	0.05
PAFAS, fam relationship, sibling	3.72	1.87	3.66	1.88	4.76	1.92	3.38	1.79	0.62	1	58	.43	0.70
PAFAS, team, target child	3.19	1.94	2.53	1.11	4.26	2.19	2.12	1.37	0.98	1	58	.33	0.72
PAFAS, team, sibling	3.69	2.15	2.72	0.92	4.29	1.73	2.47	1.46	1.38	1	58	.24	0.44
Parenting confidence <sup>a</sup>									0.35	2	61	.70	
CAPES, efficacy, target child	105.09	27.42	126.41	15.57	115.18	25.55	123.32	23.16	0.55	1	62	.46	0.50
CAPES, efficacy, sibling	115.44	33.46	138.09	16.25	118.00	26.11	137.09	20.55	0.03	1	62	.86	0.12

Note. *df*<sub>1</sub> = degrees of freedom, hypothesis; *df*<sub>2</sub> = degrees of freedom, error; <sup>a</sup>MANCOVA results

## Discussion

The aim of the current study was to determine if a tailored variant of the Triple P-Positive Parenting Program would significantly improve sibling relationships and improve individual child behaviour and parenting practices. Results found significant short-term intervention effects for the parenting intervention in improving the sibling relationship. In partial support of the primary hypothesis, the findings indicate that the Triple P brief parenting group was associated with an improvement in sibling relationships as captured by an overall decrease in the frequency and intensity of conflictual behaviours as well as an increase in positive, prosocial behaviours among siblings. However, non-significant differences between groups on specific sub-measures of sibling relationships limit the capacity to infer the specific effects of the intervention. These findings are interpreted to provide partial, but promising, support for the utility of a brief variant of Triple P to improve sibling relationships.

The results of the current study also revealed that compared to the waitlist group, parents in the intervention group showed a significant decrease in the extent to which they perceived their children's agonism and warmth behaviours a problem. However, parents' practices in dealing with their children's sibling relationships were not found to differ significantly between groups, indicating that the intervention did not bring about a significant improvement in sibling-related parenting practices. Despite this finding, an inspection of mean scores indicated parents in the intervention condition reported a higher mean use of positive parenting strategies at time two and the waitlist group report constant or lower mean use of positive strategies for managing sibling relationships. These findings were only trending, however, thus preventing a statistically significant conclusion to be drawn.

The results of the current study failed to detect any significant differences across the domains of individual child and parent functioning. No significant differences were found between the intervention group and waitlist on measures of target child, or sibling, emotional and behavioural adjustment, parenting practices, adjustment or confidence. These findings are contrary to predictions and fail to support the secondary hypothesis of the current study. It should be noted, however, that both the intervention and waitlist groups experienced improvements across child and parent outcomes with mean scores on virtually all subscales showing marked improvements from baseline to short-term assessment.

The results of the current study paint an interesting picture. On the one hand, they lend support to the role of parents in managing their children's relationships. In particular, the findings provide partial support for previous research that has demonstrated a parenting program can improve sibling relationship functioning (Feinberg et al., 2013; Ross & Lazinski, 2014). The findings add weight to the body of research that showed that the extent to which parents involve themselves in their

children's disputes is likely to influence their children's sibling relationships (Brody, 1998; Smith & Ross, 2007). The findings also support the claims made by Tucker et al. (2013) and Wolke et al. (2015) that parenting programs may be a useful tool in promoting improved relationships among siblings. In support of Kramer's (2010) argument, and the findings from Tiedemann and Johnson (1992) the data emerging from this trial indicate how a parenting program can improve the sibling relationship by seeking to increase positive interactions among siblings, rather than focussing on reducing conflict. Finally, the findings add to the potential utility of topic-specific parenting discussion groups towards improving child behaviour on a specific issue (Joachim et al., 2010; Morawska, Haslam et al., 2011; Tully & Hunt, 2015). The lack of significant differences on specific subscales of sibling behaviour indicate that further research is required to better understand why these effects were not detected.

The failure to detect any significant differences in measures of child emotional and behavioural problems and parenting practices is largely inconsistent with the large body of evidence supporting Triple P (see Sanders et al., 2014) and the evidence specifically pertaining to brief format interventions (see Tully & Hunt, 2015). Moreover, the failure to detect improvements in parenting practices towards the management of sibling relationships also is inconsistent with previous research (e.g., Feinberg et al., 2013). There are several potential contributory factors that should be considered in interpreting the null findings that exist within the current study.

First, it may take longer than 4-6 weeks for the effects of a brief intervention to become apparent. The findings from Tully (2014) clearly demonstrated that the positive effects of the brief discussion group were detected at 6-month follow up. At 6-weeks post-intervention, the brief discussion group was significantly different to the waitlist on only the measure of child behaviour. This is a particularly important comparison study for the current project as it utilised the same intervention, albeit for a different research question.

Second, the measures of sibling behaviours within the current may have created a mere measurement effect (MME). The mere measurement effect is evident when the process of measuring participants through questionnaires prompts them into the potential solution and they modify their behaviour accordingly (McCambridge, 2015). For the current study, the items included within one of the primary sibling relationship measures, the HMCC, are very specific and could be reasonably interpreted as a list of parenting strategies that parents could implement (e.g., "Asked the children to explain their sides of the conflict and worked with them to reach a solution that they both agreed on", "Use time-out – for example, removed one or both children from the conflict to let them cool down and think about what had happened"). Thus, participants in the waitlist were presented with measures that provided a reasonably detailed set of instructions hinting at how to

modify their parenting practices. For motivated parents who signed up for the study, they may have taken these ideas on board and commenced implementing them.

Third, participants (parents and children) were not screened for elevated levels of child emotional or behavioural problems, or dysfunctional parenting practices. No significant effects were found on any of these measures. However, participants were screened for elevated levels of sibling conflict and effects were found on these measures. Although screening for elevated problems does not ensure significant findings, it is often a useful tool to use in order to avoid floor effects or attract a high functioning sample. The absence of any elevated levels of child or parent behavioural problems may have been a contributory factor in the lack of significant findings in the current study.

Despite these shortcomings, the study was successful in providing initial evidence for an adapted version of a brief format parenting intervention to improve sibling relationships. The findings also demonstrate that the process of engaging the community to help co-construct the intervention has at least been partially validated. Pickering and Sanders (2015b) provided parent survey data supporting the decision to adapt the Triple P brief discussion group “managing fighting and aggression” used in this study. Although the current results do provide promising signs for the value of this intervention, the absence of significant findings on a number of specific outcome measures suggests further testing of the intervention is required. This may include an examination of whether more intensive variants or supplementary intervention components (e.g., follow-up calls) may increase the efficacy of the intervention. The current findings also point to the notion that researchers must be careful to not over-value any single source of information in designing programs. For example, the data from Pickering and Sanders (2015b) showed a clear parental preference for brief interventions. However, it is plausible that the issue of sibling conflict may require more intensive support than what parents might ideally desire. Hence, a careful consideration of what existing theory and evidence supports, combined with an understanding of the preferences of parents from diverse populations, is required.

Further, a feature of the current study is that it provides initial validation to the idea of tailoring and adapting existing programs, rather than creating new ones. It also adheres to the principle of minimal sufficiency, where parents are offered “just enough” in terms of exposure to intervention. The idea is to avoid turning parents into prompt dependent learners who become reliant on external support. It also services the idea of a public health approach to parenting. The intervention is low cost, easy to access, open to virtually all parents, and is designed in such a way that it engages parents on a topical issue that is destigmatising.

## Limitations and Future Directions

The findings within the current study must be considered in the context of any limitations. First, the sample may have been underpowered. The sample consisted of parents and children with mild social, emotional and behavioural problems, including dysfunctional parenting practices. In performing power analysis, assumptions were used based on previous studies of equivalent interventions. However, the previous studies consistently had samples with more elevated child behavioural problems relative to the sample in the current study. Future research may overcome this limitation by recruiting a larger sample to account for a potentially smaller effect size. A larger sample would also enable future research to include an active comparison control arm that tests whether a more intensive level of intervention was more effective in improving sibling relationships. An alternate strategy would be to screen parents and children for elevated problems across reliable measures of child and parent functioning. This strategy would potentially increase the likelihood of any intervention effects being detected on measures of child and parent functioning. A second limitation was the high representation of mothers, from a middle-high income family, who are well educated. Although the characteristics of this sample are relatively representative of the parents accessing services in the community the current study took place, the generalisability of the findings to divergent samples is limited. It remains unclear whether participants from more socioeconomically and ethnically diverse populations share the same needs, views and responsiveness to the topic of sibling relationships as the current sample. Future studies would add to the literature by exploring any differences that might emerge from more diverse samples and whether the intervention is effective in disadvantaged or culturally diverse settings.

Future studies may also consider including alternate sources of data collection such as child report data or observational sessions. However, practical limitations to multi-informant data need to be noted. Namely, that sibling relationship problems may be more likely to occur in specific settings (i.e., home), and primarily in front of parents. The problematic behaviours may either not exist at all or may greatly reduced in other settings (e.g., school, day care). Accordingly, independent teacher ratings of behaviour or clinical observations in a laboratory setting may present complex methodological challenges for future research.

Future research that addresses these limitations and provides additional evidence for the intervention is a crucial precursor to broader dissemination of the intervention. Consistent with the revised standards of evidence in reporting prevention science (Gottfredson et al., 2015), there are a number of important criteria that must be met before the intervention should can be scaled up. These criteria include effectiveness trial data, cost-effectiveness analysis, procedures for training implementation professionals, and preparation of all necessary training resources. Maintaining a focus on implementation science by ensuring that the necessary organisational and structural

variables relating to successful implementation and fidelity are in place is also important. The challenge is now over to future extensions of this research to expand the sample, measurement frame and methodology to achieve the necessary standards of evidence before further dissemination of the program can take place.

### **Conclusion**

The current study provides initial support for the benefits of a Triple P brief discussion group in improving sibling relationships. It also provides support for the value in engaging parents in the design of an intervention and for the decision to adapt and tailor an existing program, rather than create a new one. Sibling relationships is an important topic for parents and their children. Brief, low-cost interventions that target important and meaningful topics for parents are likely to be useful in increasing the uptake of programs across the community. The results from the current study provide preliminary support for the potential utility of a sibling relationship intervention to achieve this. Further research will complement the current findings to determine its potential for dissemination by providing additional data from more diverse samples and multi-informant measures. The ultimate goal is to increase the number of parents who have access to high quality evidence-based interventions that enable them give their children the best possible context for development.

## **Chapter 6**

Utilising the Media to Engage the Community in Behavioural Science Research

*This chapter consists entirely of a paper under peer-review in Mass Communication and Society.*

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### **Abstract**

Closing the gap between the ivory tower of academe and the general public is a strategic priority for universities all over the world. Engagement, as it is otherwise termed, is designed to bring the researcher out of the laboratory and into people's lives. However, from the individual researcher's perspective the benefits of engaging with the non-academic community may not always be clear. University reward and recognition systems tend to skew academic performance towards endeavours that may limit engagement. Yet, an over valuing of engagement activities such as commercialisation may prove equally limiting. Using the development of an evidence-based parenting program for managing sibling conflict as a platform, this paper explores the potential benefits of researchers utilising the media to engage with the community throughout the research and development process. Specifically, we seek to demonstrate how community engagement through the media enhances the potential for positively influencing community understanding and attitudes towards sibling conflict. The power of effective science communication, the importance of collaborating with the media, and the essential role of graduate students in this process are discussed.

**Keywords.** Engagement, Media, Science Communication, Sibling Conflict

## **Utilising the Media to Engage the Community in Behavioural Science Research**

Universities are at the crossroads in many nations. The once coveted cloisters of teaching and research are faced with declining government funding, massive increases in graduate students, few graduate job vacancies, and the rise of technology that threatens the core business model universities are built on (e.g., Massive Open Online Courses). Overvaluing the performance metrics of research grants and peer-reviewed publishing in domain-specific arenas has thrown the scholarly community into a self-referential cycle that undermines the importance of connecting academic work to the outside world. It is perhaps not surprising that there is talk of a higher education system in “crisis” and a need to reconstitute the DNA of universities to ensure their long-term survival (Eyring, 2011).

To help combat this cycle, university strategic plans frequently point to the imperative of enhancing engagement (e.g. Høj, 2012). Engagement is the process that enables academics to undertake valued research that has practical, real-world applications and measurable impact (Hughes et al., 2013). Specialised vernacular has been developed to describe engagement and challenge academics to embrace it—‘Translational research’, ‘knowledge exchange’, ‘technology transfer’, ‘commercialisation’, and ‘science communication’ are just some examples of the language used. Yet despite the trend, the idea of universities valuing engagement is paradoxical insofar that it is neither new, nor necessarily widely embraced (Martin, 2012). Some, however, suggest that engagement is experiencing a period of “renaissance”, especially in health research (Ahmed and Palmero, 2010).

The purpose of this paper is to document how research engagement has been embraced by a group of behavioural scientists operating in an Australian university setting. Specifically, we describe how a university research group can enhance its impact by working with the media to engage the community in designing and testing a behavioural parenting intervention for improving children’s sibling relationships. It is hypothesised that ongoing engagement will inform the development of the intervention, improve its fit, and enhance its impact within the community. We frame this case study as a discussion on why engagement matters, and the specific role of the media in enhancing engagement, especially within the behavioural sciences.

### **Why Engagement Matters?**

Much of the benefit derived from university engagement is explained in terms of the potential for diversifying revenue streams coming into the university system. Research academics are heavily reliant on government-enabled granting programs (e.g., The National Institutes of Health in the US; the National Health and Medical Research Council in Australia). These granting programs are extraordinarily competitive, allocated by reviews by selected peers in the field, have very specific rules and limitations, and in countries like Australia, are subject to variable budgets and successful



funding rates are as low as 8.2% of applications (NHMRC, 2014). Engagement is a means for universities to find “non-traditional” sources of funding support that overcome the limitations in traditional funding structures. Non-traditional sources of revenue support may include, but are not limited to, funding support from industry partners, corporate foundations, private philanthropists, and commercialised revenue returns from the sale of intellectual property or shares in spin off companies. However, diversifying revenue streams and generating commercialised research is only one potential form and benefit of engagement.

Hughes and Kitson (2012) reported on the findings from a large-scale survey of UK academics to shed light on their engagement activities—especially in relation to commercialisation. They surveyed 22,000 academics across the UK about their engagement activities across four categories. These categories include *people-based activities*, such as sitting on advisory boards, attending conferences and giving invited lectures; *problem solving activities*, including contract research, providing informal advice and jointly engaged research; *commercialisation activities* such as developing start-up companies and exploring paths to market; and *community-based activities* ranging from public exhibitions to community lectures. The survey demonstrated that commercialisation was the least prevalent form of academic engagement with external organisations, whereas people-based activities were the most common. This finding was consistent with D’Este and Perkman (2011) who also conducted a survey of academics and concluded that the primary motivation for academics to engage with industry was to further their research rather than to commercialize their knowledge.

When taken together, the two surveys point to the conclusion that when the definition of engagement is broadened to extend beyond indices of commercialisation and revenue diversification, it is clear that engagement is more common than initially thought—a finding pronounced for academics in the humanities and social sciences where non-commercialisation forms of engagement were particularly prevalent. This finding has important implications in the behavioural sciences where there is a growing call for psychology and other related disciplines to better engage with other disciplines and undertake research that has measurable impact in the community across wide-ranging domains (see Kazdin, 2009).

### **Engaging the Community in Behavioural Sciences Research**

Engaging the community in behavioural sciences research is a powerful platform for enhancing research effectiveness, especially in relation to the development of psychosocial interventions. Engaging the community increases understanding of needs, improves the quality of research, and optimises the fit of the intervention for the target constituency. Participatory research, sometimes called participatory-action research or community-based participatory research, provides an excellent model for understanding the benefits of engaging the community in the research process.

Participatory research actively engages with the target community to incorporate local knowledge and perspectives into the planning and execution of the body of research (Cornwall and Jewekes, 1995). In this way, research is conceptualised as a continuous collaboration with the community, rather than an outcome that is imposed upon it. The US Institute of Medicine has included participatory research as a new focal area that public health researchers should be actively infusing with their existing models of enquiry (Gebbie, Rosenstock, & Hernandez, 2002).

A model for “consumer engaged” research, adapted from the participatory research model and outlined by Pickering and Sanders (2013, 2015b), provides a theoretical basis for the current paper. The fundamental goal of the model was to devise a research strategy based around people from the community in light of their actual needs, their preferences, and the context in which they make decisions. Consumers of research can represent a diverse mix of constituents. In the parenting and family intervention arena, this may include the parents themselves, their children, practitioners supporting parents, the agencies who employ the practitioners, and governments that set policy that supports the intervention. Similar to participatory research, the consumer engagement model emphasises the importance of intervention development as being dynamic and responsive to the consumer voice and seeks to integrate consumer preference data with sound theoretical and empirical foundations. Moreover, the model is concerned with linking research to policy and ensuring that intervention developers are mindful of the broader political environment when developing and disseminating interventions.

Applied to issue of sibling conflict, the logic of the Pickering and Sanders (2013, 2015b) model was simple – sibling conflict is a particularly poignant issue for parents and the implications of problematic sibling relationships can last a lifetime. More pressingly, parents may be the single most important factor in positively influencing their children’s relationships and steering them towards a positive developmental trajectory (Tucker et al., 2013). Hence, a positive parenting program designed to change parents’ behaviour in order to bring about change in their children’s behaviour is not only theoretically plausible, but also is well poised to bring about positive behavioural and social change for children, their families and the community. To develop an effective intervention, it is necessary to engage parents in the research process to inform the development of that intervention. To achieve this translational research goal, the media then has an important role to play in communicating key learnings and messages along the way to raise awareness in the parenting community of the relevance and availability of potential solutions and how to access them.

In the first phase of application of their consumer engagement model, Pickering and Sanders (2015b) conducted a survey to help inform the development of an intervention for sibling conflict. In designing the survey, the research team focused on embedding items that would illuminate the

key targets for intervention. They assessed what specific sibling behaviours parents found challenging, which behaviours they desire most help with, what they attributed causes of sibling conflict to be, their views on the acceptability and utility of specific parenting strategies, how best they would like to access support, and any perceived barriers to participation in a program. The results of the survey were infused alongside existing theory and empirical evidence to inform the development of an intervention for sibling conflict (Pickering and Sanders, 2015b; Pickering et al., 2015). Once the intervention was developed and ready for randomised trialing, it was necessary to activate the second phase application by constructing an effective media and communications engagement strategy to assist with the transfer of knowledge to the community.

### **The Role of Media in Changing Parents' Behaviour**

Utilising the mass media as a science engagement tool can bring about positive change or prevent negative health-related behaviours across entire populations (Wakefield, Loken, & Hornik, 2010). However, the idea of utilising the media to bring about a meaningful change in health-related behaviours (e.g., cardiovascular disease) is not new (Redman, Spencer, & Sanson-Fisher, 1990), and more recently there has been a notable proliferation of the use of social media as a tool to bring about behaviour change (Maher et al., 2014).

There are some excellent examples of where researchers within the field of evidence-based parenting interventions have demonstrated how the media can be used to bring about change in behaviour and attitudes in the viewing audience. For example, Calam, Sanders, Miller, Sadhnani, and Carmont (2008) evaluated the impact of the “Driving Mum and Dad Mad” television series. Driving Mum and Dad Mad was a 6-episode reality television series that followed five families participating in Group Triple P—an evidence-based parenting program developed by Sanders and colleagues at The University of Queensland (Sanders, 2012). Participants were randomly assigned to either a standard or technology-enhanced viewing condition (included additional Web-support). Parents in both conditions reported significant improvements across a range of child outcome measures. In a follow up study, Sanders et al. (2008) investigated whether providing additional self-directed and web-based support for parents viewing the program made any difference. Parents in both conditions reported significant improvements in their child’s disruptive behaviour and improvements in dysfunctional parenting practices. Additionally, Morawska, Tometzki and Sanders (2014) examined whether a series of brief radio podcasts based on the Triple P-Positive Parenting Program made a significant difference to parent and child behaviours. Parents in the intervention group improved significantly more than parents in the control group on most measures of child behavioural problems and parenting style, self-efficacy, and confidence. When taken together, these studies point to the potential value of media-based interventions as not only a useful means of reaching families, but also in changing attitudes and shifting behaviour.

## The Current Study

The current study examines whether utilising the media as part of the research engagement cycle can successfully activate a process of influencing community sentiment and attitude towards sibling conflict. This study extends the body of engagement work previously undertaken in relation to the development of a behavioural parenting intervention for managing sibling conflict (Pickering & Sanders 2013; 2015b; Pickering et al., 2015). We hypothesise that the combination of an opportunistic appearance on a national television program, combined with a social media article, will raise awareness of the importance of siblings, influence community opinion, and lay the foundation for behavioural change and positive social impact.

## Method

### Participants

Participants ( $N=338$ ) responded to a brief online questionnaire designed to assess attitudes toward sibling rivalry. Most respondents were parents (64.2%,  $n = 217$ ) of two children (30.8%,  $n = 104$ ). The majority of respondents self-identified as having a sibling themselves (97.6%,  $n = 330$ ). A total of 13% ( $n = 44$ ) of respondents reported having viewed the SBS Insight *Sibling Showdown* television program, and 87% ( $n = 294$ ) reported they had not.

### Media Platforms

**SBS Insight.** ‘Insight’ is an Australian current affairs program broadcast weekly on the Special Broadcasting Service (SBS) Australia free-to-air television channel. The 60-minute program aims to provide viewers with a holistic and multidimensional approach to topical issues by providing a platform for facilitated national discussion among experts, academics, practitioners, policy makers, and members of the general community.

An episode entitled *Sibling Showdown* covering the issue of sibling conflict aired on the 7<sup>th</sup> of April, 2015 at 8:52pm, broadcast from 9 stations across Australia. The episode was hosted by SBS news presenter, Anton Enus, and featured Australian parents, academics, and adult siblings. Discussion was based around when and how competition and conflict between siblings is beneficial and what influences favouritism and cultural differences. The author of this dissertation appeared on the program in the capacity as an “expert” on the issue of sibling relationships. He was on-screen for approximately 4-minutes, and during that time he presented the importance of parents becoming involved in their children’s sibling relationships and what the consequences are of under/over involvement. At time of publishing, the *Sibling Showdown* episode was watched by 383,000 people, including 145,000 males and 229,000 females, mostly over the age of 16. The episode and transcript is viewable through the following link –

<http://www.sbs.com.au/news/insight/tvepisode/siblings-showdown>

**The Conversation.** The Conversation (<https://theconversation.com>) is one of Australia's largest independent news and commentary platforms with published content sourced from the academic and research community for access by the general public. The Conversation has a monthly readership of 2.7 million users the majority of whom are non-academic (80%), under 45 (56%), have an undergraduate degree or higher (83%), have an income of \$100,000 or higher (52%), and are female (51%)

The article entitled 'The Gallaghers, the Stefanovics and the Rineharts: What's behind sibling rivalries?' (see Appendix E) published on the 7<sup>th</sup> of April 2015 addressed the paradox of sibling relationships and juxtaposed views on the nature of conflict between siblings. At the time of publishing, the article had 13,560 unique readers, of which 86.1% were from within Australia, and 4.4% from the United States. The article was shared 12 times on LinkedIn, 29 times on Twitter, and 'liked' 44 times on Facebook over an approximate 3-month period.

### Measures

A brief 11-item survey was designed to capture respondents' attitudes toward the issue of sibling conflict, immediate reactions to the *Sibling Showdown* episode, and how the community would receive a parenting program for sibling conflict. The survey was hosted on Qualtrics, an online survey software platform with a mobile-friendly format.

To allow comparisons between groups, the first item asked participants whether they had watched the SBS Insight program *Sibling Showdown*. Participants who responded 'yes' were asked to clarify their response in a subsequent item: 'If yes, has watching the *Sibling Showdown* episode changed your views on the importance of sibling conflict?' Participants indicated their views by selecting 'Yes, it is more important than I thought', 'Yes, it is less important than I thought', or 'No'.

In four subsequent items, basic demographic data were obtained. Participants were asked to indicate whether they were parents, and if yes, also indicate the number of children they had in an open text-entry field. The same process applied to participants who reported having a sibling (yes vs. no). If yes, participants indicated how well they got along with their sibling on a Likert scale ranging from 1 (don't get along well) to 5 (get along very well).

The remaining questions assessed participants' views on matters relating to sibling conflict. Participants were asked questions such as 'how much do you think sibling conflict affects someone's social, emotional and behavioural development?' and 'how important are parents in helping resolve their children's conflict?' with responses recorded on a Likert scale ranging from 1 (not at all) to 5 (a lot). Participants were also asked to indicate their level of agreement on a 5-point Likert scale to statements such as 'sibling conflict is normal and we shouldn't be concerned about

it', 'should parents get involved with their children's sibling conflict?', and 'is it a good idea to offer parents a program to manage sibling conflict?'

### **Procedure**

The Conversation article and the online survey were released on the morning of the *Sibling Showdown* airdate. This was designed to create a social momentum around the *Sibling Showdown* episode and to allow flow between the three online platforms. Participants were directed to the questionnaire through several portals. The Conversation's publications department incorporated a footer containing a synopsis of the episode to air that evening. SBS Insight promoted the survey through social media in the lead-up, during and after the program. Personal social media platforms such as Facebook and Twitter were also used throughout the day of airing. The URL led participants to an information sheet that stated the survey was designed to assess views and attitudes towards sibling relationships, with a particular interest in the role of media in shaping people's views on this topic. It also stipulated that the study had obtained ethical approval from The University of Queensland and that participants were free to withdraw from the study at any time without penalty.

Consenting participants clicked through to the questionnaire page. Responses to all questions were not required for the participant to move ahead with the survey. At the final stage, participants were provided the opportunity to enter an email address to be notified of the findings of the study upon publication. Participants were advised personal data would not be coupled with their questionnaire responses, and that their responses would remain anonymous. The survey was deactivated after 7 days. Data were downloaded and analysed using SPSS statistical package for data analysis and interpretation.

### **Statistical analysis plan**

Frequencies were used to evaluate the general trends in the data and whether they aligned with hypotheses. Chi-Square tests were used to test for any observed differences between reports on whether parents should get involved in their children's sibling conflict as a function of viewing the *Sibling Showdown* program. Fisher's Exact Test was used to control for the violation according to Field (2009) that the sample size in any cell must be  $\geq 10$ . Due to the field-observation like nature of the data, more robust statistical analyses were not possible as several violations of their assumptions would occur. Qualitative analyses then were conducted to evaluate community response to an article posted in The Conversation regarding sibling conflict.

## **Results**

### **Participant report: Importance of parenting in relation to sibling conflict**

Descriptive analyses of the survey were used to measure frequencies, means and standard deviations of participant scores on several items. The majority of participants reported getting along

either 'well' (25.3%) or 'very well' (26.8%) with their own sibling/s. In contrast, the minority (17.1%) reported they did not get along well with their sibling/s ( $M = 3.34$ ). The majority of participants (65.3%) indicated they disagree with the statement 'Sibling conflict is normal and we shouldn't be concerned about it', while 34.8% of participants agreed with the statement. In relation to how much participants' believed sibling conflict affected someone's social, emotional and behavioural development, the majority of participants reported either 'quite a lot' to 'a lot' (39.9%, and 36.1% respectively) while the minority (3.3%) reported 'not at all'. When asked 'how important are parents in helping resolve their children's conflict' the majority of participants reported 'quite a lot' to 'a lot' (34.3% and 46.2%) whilst the minority (1.2%) reported 'not at all'. When asked whether parents should get involved with their children's sibling conflict, the majority (93.8%) reported 'yes' whilst the minority (6.2%) reported 'no'. Finally, when parents were asked 'is it a good idea to offer parents a program to manage sibling conflict the majority said that it was a 'good idea' or a 'very good idea' (18.6% and 59.8% respectively), whilst the minority (1.2%) said that it was not a good idea.

### **The effect of watching the program**

A total of 47.7% of participants who viewed the sibling showdown program reported a change in their views on sibling relationships. Of those who changed their views, the majority reported they believed sibling conflict was now more important after having watched the program (40.9%) while the minority (6.8%) reported that it was less important. Chi-squared tests were conducted in order to test whether there were significant differences in participant reports on 'whether parents should get involved with their children's sibling conflict'. Data were analysed based on whether the participant had watched the *Sibling Showdown* program, whether they were a parent, had a sibling, and how well they got along with their sibling. Results revealed a significant relationship between reports of participants who had watched the *Sibling Showdown* program and those who thought parents should get involved in sibling conflict,  $\chi^2(1) = 12.37, p < .05$ . Such that people who viewed the program ( $M = 1.18, SD = 0.39$ ) were more likely to think that parents should get involved ( $M = 1.04, SD = 0.21$ ) compared to those who had not watched the program, to a small effect,  $\phi = .19$ . There was no significant difference detected between those who were a parent and those who were not a parent on whether parents should get involved in their children's sibling conflict,  $\chi^2(1) = .06, p = .817$ , with a negligible effect size  $\phi = .01$ . There was no significant relationship between reports from those who had a sibling and those who did not on whether parents should get involved in their children's sibling conflict,  $\chi^2(1) = .55, p = .406$ , with a negligible effect size  $\phi = .04$ . Finally there was no significant difference between reports from those who got along well with their sibling and those who did not on whether parents should get involved in their children's sibling conflict,  $\chi^2(1) = .00, p = 1.00$ , with a negligible effect size,  $\phi = .00$ .

### **Qualitative analysis - The Conversation**

At time of publishing, there were a total of 26 comments, 5 of which were responses by the first author and 21 of which were written by 10 respondents with no background in clinical psychology. Comments were coded by two research assistants volunteering on the project, who were instructed to identify and list common themes arising. A tally was kept of each time the themes were addressed by a commentee.

The most highly cited themes were: 1) Dissatisfaction with currently available psychological interventions and advice across a range of issues (e.g. grieving, foster parenting, counselling) ( $n = 8$ ); 2) Agreement that parents' roles are pivotal in defining the family dynamic and sibling relationships ( $n = 8$ ); and 3) The need for tailored and individualistic approaches to the development and delivery of psychological interventions ( $n = 3$ ). The majority of comments ( $n = 18$ ) expressed interest and general support for the article content.

### **Discussion**

The aim of the current study was to explore the merits of researchers utilising the media to enhance engagement with the community within behavioural sciences research. Specifically, we examined whether leveraging television and online media would be successful in influencing community sentiment regarding the issue of sibling conflict. The current study builds on the broader body of work demonstrating how to effectively engage the community in designing a behavioural science intervention, trialing it, and communicating the significance of learnings along the way. Overall, the results indicated that viewing the SBS program was associated with a shift in viewers' attitudes towards sibling conflict. Viewing the SBS program resulted in a shift of attitude towards sibling conflict for virtually half of the sample. Of those who experienced a change of view, 85% reported that the issue is more important than previously thought, with only 15% reporting it less important. Moreover, the results showed that over half the respondents thought sibling conflict was an important issue that warrants attention.

The findings indicate that respondents were largely attuned to the potential consequences of sibling conflict, with the majority of the sample reporting the issue is likely to impact on children's social, emotional and behavioural development. This is an important finding as it lends support to the need for further research and program development to address this issue. The results also revealed that the majority of participants believed that parents are important in helping their children resolve their conflict and that parents should get involved. Alongside this finding, results also revealed that the majority of participants thought that a parenting program for managing sibling conflict was a good idea. In sum, these findings indicate that there is both a need and a desire in the community for the development of a program that will assist parents in managing their children's conflict.



The most compelling finding from the study is the reported shifts in attitudes and beliefs emerging from participants who viewed the media program. The capacity for a 1-hour television program to shift community attitude is a promising result, attesting to the utility of engaging with the community throughout the research process. These findings demonstrate how engaged research can help bring about change in the community, lending further support to the utility of the media in affecting the views and attitudes of its audience. The findings from the current study have important implications for future research in the behavioural sciences and beyond. Consistent with Pickering and Sanders (2013), the current findings point to the value of ensuring the research and development cycle is seen as iterative, dynamic and responsive to need. For engaged research to be realised, it must comprise a two-way set of communications whereby researchers are able to interact with the community at each point of the development cycle.

Whereas the current study provides a useful insight into the potential power of working with the media to engage the community in research, it is also necessary to frame the conclusions in a manner commensurate with the data obtained. The opportunistic nature of the study, combined with a determination to keep measurement brief and feasible, produced data that are methodologically and statistically simple. The conclusions emerging from this study should be interpreted in the manner they were derived—to provide an initial assessment of whether community attitude is potentially modifiable following brief exposure to a media engagement piece. Moreover, Korda and Itarni (2013) point out that care is needed when utilising social media as a tool to drive change in community opinion or behaviour. Despite the considerable potential they have as tools for health promotion and education, they also require careful evaluation and a dedication to incorporating outcomes research and theory into social media health promotion strategies.

A key strength of the current study is that helps build trust and confidence from the community to researcher, helps improve the fit of intervention, and above all, improves the impact of research. This concept is consistent with the movement towards the fully engaged university (Dodgson, 2015). The fully engaged university requires a strategic repositioning of university priorities and a commitment to engagement across the entire spectrum of the research process. It also necessitates a willingness of individual academics to reposition their own thinking about the work they do and the value they place on engagement activities.

A further feature of the current study was that the lead researcher involved in the body of work was a graduate student. There can be misplaced conceptions that seniority in the academic world should have prominence within the broader world of science communication, and that early stage career researchers should concentrate exclusively on their publications portfolios. However, this does not necessarily have to be the case. While the role and significance of senior academics should always be preserved and respected, embedding a firm understanding of engagement and media

skills process within the graduate training experience is crucial. Those who oppose engagement fail to recognise its value, especially for graduate students. Engagement encompasses a broad base of skills and capabilities that the next generation of academics will require to not only thrive in their careers, but potentially to even have one in the first place.

### **Challenges and Implications**

Researchers are routinely reinforced and rewarded with promotions, award of tenure and incentives for communicating their science through traditional outlets. Moreover, from the individual researcher's perspective, the benefits of engaging with the non-academic community may not be so clear; it may even be seen as counter-productive. In a system whereby the basis for assessing academic performance and promotion is largely derived through traditional research performance (i.e., grants, publications), the question arises of how best to incentivise and reward external engagement. The challenge then is to sufficiently reward academics, especially graduate students for engaging externally. One possible means of achieving this is to include recognition of engagement activities, including science communications, as part of doctoral students' milestone and candidature experience. This same principle could be applied to tenured academics also, including added incentives for engagement activities. It is crucial, therefore, for researchers to not only be willing to engage with the community, but they must also devise strategies for evaluating, measuring and reporting the effectiveness of their engagement activities.

There is enormous potential for ongoing and future research in the broad arena of engagement within the university system. From the perspective of working with the media, there is much to be learned about the relative influence different types of media have and whether different platforms might be more effective than others for specific interventions. A focus on engagement throughout the research process is likely to enhance the potential for research impact. Engagement offers a two-for-one modality insofar that it simultaneously requires academics to communicate in easy to understand language, across multiple formats, and it also incorporates the community, and its needs and preferences, along the way. The net result is that the impact of research is likely to be significantly enhanced through engagement.

### **Conclusion**

Engaging the community throughout the entirety of the research and development process is a strategic investment in people's capacity to establish prosperous, independent, and impactful careers. It is an investment that provides individuals with the skills and opportunities to stay competitive in a global marketplace. For the behavioural sciences, it is undertaking research with impact and appreciating that creating positive social change requires much more than a well-designed randomised controlled trial. When the engagement challenge is accepted by universities, academics and their graduate students, the entire community is more likely to benefit.

## **Chapter 7**

### General Discussion

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The aim of this concluding chapter is to synthesise the major contributions to emerge throughout the dissertation. Rather than rehash the conclusions presented in the preceding chapters, this chapter will take an overarching look at the key findings, limitations, and implications emerging from this body of work. A discussion of the skills acquired in undertaking this project, the role of commercial partners, and suggestions for new horizons for research also is presented.

#### **Major contributions**

The primary goal of this dissertation was to design and test a parenting intervention for improving sibling relationships. To do this, there were three gaps in the literature the dissertation sought to address: First, to understand parents' needs, attitudes, and preferences in relation to managing their children's sibling relationships; second, to evaluate an intervention specifically designed to decrease sibling conflict and increase warmth; third, to evaluate whether engaging with the community via the media can successfully influence community attitude towards sibling relationships. Described below are the three ways in which this dissertation addresses these gaps and in so doing, provides three unique contributions to the field.

The first step in this dissertation was to undertake a comprehensive analysis of the literature pertaining to siblings, parenting programs, and engagement. This analysis resulted in a clear understanding of three things: (1) siblings play a very important role in shaping each others' development; (2) parenting programs could be a useful tool in helping promote better sibling relationships, but very few exist; (3) engaging parents in all aspects of the research process is likely to lead to enhanced fit and impact of the intervention.

The next step was to survey parents in the Australian community in relation to their thoughts, attitudes, needs, and preferences in managing their children's sibling relationships. This was the first time such a measure of parental sentiment towards sibling relationships had been conducted. It also represented the first of the significant contributions this dissertation made to the field. The key findings to emerge were that parents would like to see greater levels of warmth and prosocial behaviour among their children, but require assistance in managing conflictual episodes. Parents were responsive to learning positive parenting strategies and expressed a desire to access support in brief formats. Once these data were derived, a decision was made to adapt an existing evidence-based intervention—the Triple P brief discussion group for managing fighting and aggression—for the purpose of improving sibling relationships.

Triple P is a system of evidence-based parenting programs and is widely adopted in several countries worldwide. The decision to adapt a variant of Triple P was based on two factors: first,

Triple P adopts a public health approach to parenting support. As a result, there are multiple versions of Triple P programs that exist across a sliding continuum of intensity. This was relevant to the current dissertation as it meant there were existing programs that could potentially be adapted for use in the current trial, rather than developing an entirely new one. Second, the dissertation was undertaken in the Parenting and Family Support Centre (PFSC) at The University of Queensland. The PFSC is the international research and development hub for Triple P, and hence the author of this dissertation had full access to the suite of programs comprising Triple P and the opportunity to adapt was not only appropriate, but convenient. As a result, the principles of flexibility and tailoring were utilised to adapt the Triple P brief discussion group for managing fighting and aggression for the purpose of improving sibling relationships.

The second contribution of this dissertation were the promising data to emerge from the foundational randomised controlled trial of Triple P for improving sibling relationships. These findings provided preliminary support for the utility of an adapted, brief intervention in improving children's sibling relationships. The intervention also showed promise for significantly improving parents' perceptions of problems associated with sibling relationships. Although no significant effects were detected for individual child and parent behaviours, the results from this study provided foundational evidence that a tailored, low-cost, brief intervention can be applied to the purpose of improving sibling relationships. Further research is needed, including testing differing levels of intervention intensity, cost-effectiveness analyses and ensuring the necessary implementation variables are in place (e.g., organisational readiness, materials, training), before the intervention can be considered for scaling up.

The final significant contribution of this thesis was the demonstration that engaging with the community through the media is a potentially useful tool in bringing about a positive shift towards the issue of sibling conflict. More specifically, the dissertation was able to provide initial evidence linking a national television broadcast to an increase in people's perceptions of the importance of parents in shaping the quality of children's sibling relationships. In this instance, media engagement was utilised to promote a destigmatisation of the idea of accessing support to manage problem sibling behaviours. Further research is required to explore the potential of engaging with the media to bring about changes to parents' actual behaviours towards sibling relationships.

**Overarching limitations.** The key limitation emerging from the current body of work is the issue of generalisability. Stretching across all three studies, the characteristics of the samples are relatively homogenous, and skewed towards affluent, educated populations. Moreover, despite significant effort to recruit fathers into the project, only a handful of the total number of participants were male. Although it is not uncommon for parenting and family research to have a skewed sample, it does mean that the extent to which the findings can be generalised to all corners of the

community remains unclear. Future research with more diverse samples will add to the current findings by demonstrating the extent to which more sociodemographically diverse samples perceive sibling relationships and respond to the intervention.

A further limitation that stretches across all three studies is the issue of measurement sensitivity. For the survey, sufficient reliability and validity data had yet to be obtained on some of the measures. For the RCT, the inclusion of measures with multiple informant data would have strengthened the findings (e.g., observational data). For the media study, a greater understanding of the sociodemographics of the sample and a more precise understanding of the exact degree of exposure respondents had to the media condition would have been useful. Nonetheless, the data are interpreted in light of these limitations and the implications were discussed in depth in each relevant chapter.

**Overarching implications.** Described below are several important implications emerging from this dissertation.

*Promotes a public health approach to parenting.* A striking feature of this project was its popularity with its primary target population—parents. In promoting the trial, discussing it with the media, talking about it with peers and friends, many people had a story to tell about sibling relationships—either their own or their children’s. This observation has important implications. Having the conversation about undertaking parenting programs is a key element of a public health approach to parenting support. Parents in the community need to know programs exist, that they work, that they are applicable/useful, and how to access them. The sibling relationship is one potentially powerful way of getting parents interested in seeking support to achieve this goal. Anecdotally, many people share the view that it is commonplace for siblings to fight and squabble with one another. Hence, leveraging the topic to engage parents, while highlighting the virtues of seeking positive parenting support, may lead to an increase in participation rates in parenting programs.

*Avoids redundant program development.* It can be counterintuitive for program developers to simply adapt an existing program for a new problem. It is reasonable to argue that new problems need new solutions. However, this does not have to be the case. This dissertation provides at least partial validation to the possibility of innovation in terms of program adaptation, rather than program creation. The findings from the current body of work lend weight to the value of research examining to what extent are new programs needed for new problems, settings, or situations? Further research is warranted that seeks to better understand the answers to these questions.

*Optimises dissemination potential.* For programs to be effectively disseminated, as many barriers as possible must be removed. In particular, this means removing the costs associated with printing resources, training practitioners, and developing new programs. Adapting an existing

program removes these barriers and accelerates the path to market and encourages flexibility among the practitioner base. This is likely to mean more practitioners will use the program and more parents are potentially able to benefit from it.

*Policy friendliness.* Policy makers do not want to invest just in programs that work, they want to, wherever possible, invest in programs that fit with community expectation and are popular (Queensland Government, 2015). The development of the current intervention addressed these ideals. By engaging the community in the research process, the current project sought to remove barriers to participation, be cost-effective and target a topical, highly relevant issue that the community could identify with.

### **Engagement competencies**

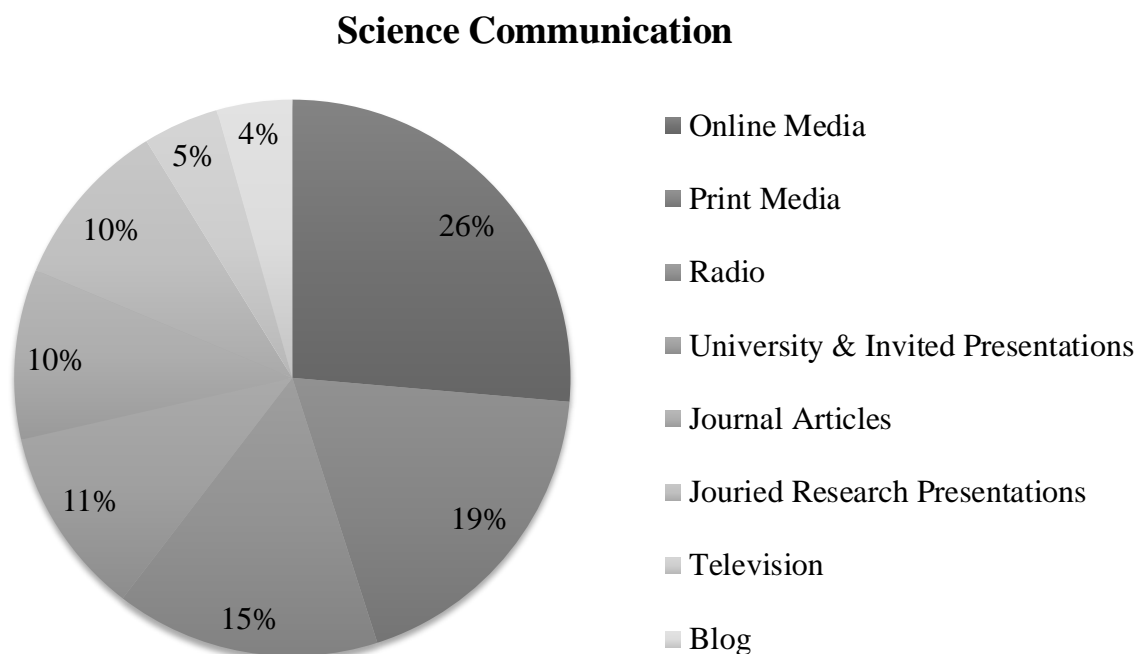
The spirit that this body of work was undertaken in was to achieve two objectives in parallel. The first objective was to produce a doctoral dissertation that made a meaningful contribution to the empirical literature. The extent to which this was achieved is captured in the previous section of this chapter. The second objective was to better understand the skills, abilities and competencies needed to not only achieve the broader goals of the project, but also to provide the graduate student with invaluable career enabling skills. The focus of this chapter now turns to the two leading competencies that this dissertation renders crucial to success: science communication and partnership formation—both of which are inextricably linked to the concept of engagement.

#### *Science communication*

Science communication opens up a bidirectional conduit from research group to the community that exists across the entire spectrum of the research process. Examples of science communication include traditional academic endeavours, such as publishing a scientific paper, presenting research at a conference, and writing reports; and also non-traditional endeavours, such as developing content for, and appearing on, television and radio, participation in blogs and vlogs, hosting a twitter feed, or briefing persons of influence (policy makers, funders, industry partners, members of the community, prospective students, or colleagues). Arguably the most important aspect of science communicating is broadening the reach of the research and bringing about some meaningful change in a community. This is precisely what this dissertation sought to do. Effective science communication enabled a much wider set of interactions for the researcher to take place. Broadening interactions among multiple constituents has the potential to increase the discovery and integration of new ideas, concepts, collaborations and technologies into the research process. These virtues will become increasingly essential for the next generation of scholars.

Throughout the duration of this dissertation, the author was involved in 91 science communication events. This included 9 peer-reviewed publications, 9 conference presentations, 10 university and agency presentations, and 63 media appearances (17 print media articles, 24 online

media articles, 14 radio appearances, 4 television appearances, and 4 blog posts). An estimation of the reach of this body of work indicates that the author has reached no fewer than 5.8 million members of the community (The University of Queensland, 2015). Of note, estimates of advertising value of these media events to the University were provided at AUD\$2.3 million. Figure 7.1 captures the science communication events undertaken during the candidature period by the author of this dissertation.



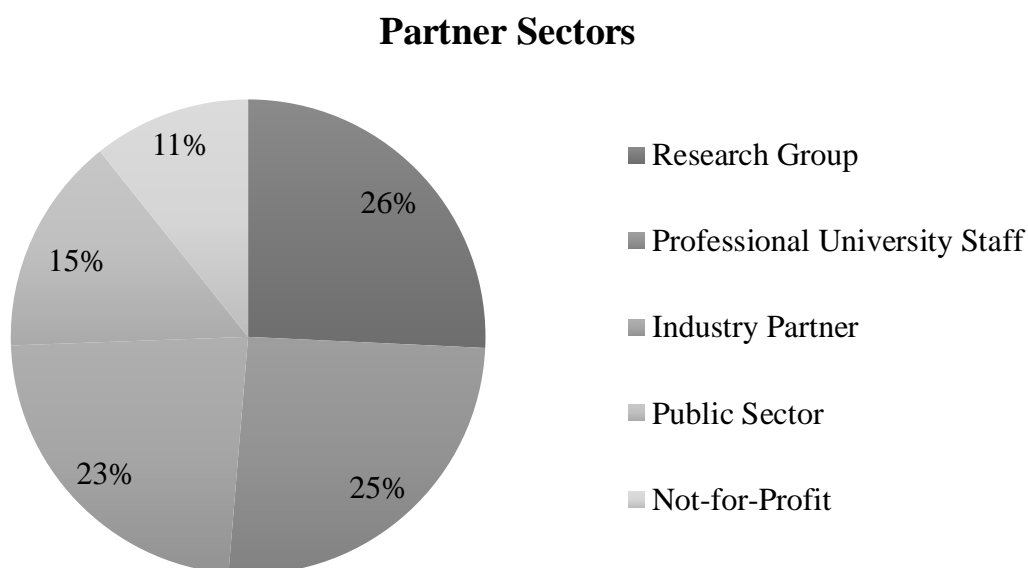
*Figure 7.1.* The breakdown of communications activities stemming from the doctoral research project, expressed as a percentage of overall communications

Science communication was an important complement to the main goal of the thesis. It enabled attention to be directed towards developing the skills, competence, and confidence required to deliver messages to a wide variety of audiences. Typically, academics are trained exclusively to communicate to one another in academic outlets. While this is certainly important, communicating research findings to other members of the academic fraternity in journals that are locked behind expensive pay walls, or conferences with registration costs, should only ever be considered a fraction of an individual researcher's communications portfolio. Not only does a broad capability in science communication engender better engagement with the community, it significantly increases the chance of producing work with real influence in that community. For example, within the current project less than 5% of the reach of information emerging from the thesis was through traditional communications outlets (journals, conferences, research meetings). In others words, more than 95% of the reach was achieved through diverse, non-traditional outlets. Being able to communicate with a wide variety of audiences is key to achieving the broad ranging goals

established in the innovation engagement framework presented earlier in this dissertation. It is also important that science communication remains an ongoing activity. Communications should not cease once the research process is finalised. Researchers need to ensure findings are communicated widely—especially to participants and other stakeholders who were involved in the research (e.g., parents, schools, funders).

*Partnership formation.* Universities, and the researchers within them, cannot act in isolation. The extent to which researchers are well-connected both within their own university system and beyond it is likely to be correlated to their impact and success. A focal point in undertaking the current body of work was to develop meaningful partnerships with key internal and external stakeholders that were important to the ongoing research and development effort. Examples of these partners include meeting with donors to secure funding support, establishing partnerships with industry to assess the fit of work to their organisational agenda, and linking findings to policy.

During the course of this dissertation, the author met with 121 potential partners. The nature and significance of these meetings reflected content specific to this dissertation as well as broader projects the author was responsible for within the research group. This figure includes 31 research groups, 28 industry partners, 13 not-for-profit organisations, 18 public sector partners, and 31 professional university staff partners. When taken together, the partnership and science communication data indicate a total of 212 engagement events were undertaken. Figure 7.2 captures the partnership activities undertaken during the candidature period by the author of this dissertation.



*Figure 7.2.* The breakdown of partner groups stemming from the doctoral research project, expressed as a percentage of overall communications



Two partnership formation examples specific to the current project are worth describing in detail. First, a partnership was established with a leading school in Brisbane, Australia. This collaboration occurred to increase recruitment of parents into the program and to provide facilities (physical space) for conducting parenting groups. The terms of this partnership were devised on the basis of a mutuality of benefit to both groups. From the researcher's perspective, the benefits included increased access to a potential participant pool and a convenient space to run the parenting group that would increase the likelihood of parents' participating. From the school's perspective, the administration was seen to be making opportunities available to parents to participate in an innovative trial of a new program. Further, both the school and parents may also benefit from having children who respond favourably to the intervention strategies.

A second example of a partnership to emerge from the dissertation was the formulation of a partnership between the author of the dissertation, Australian Broadcasting Corporation (ABC) Radio and the social media site, The Conversation. The ABC contacted the author of this thesis after reading a piece he wrote on sibling rivalry for The Conversation (see Appendix E). The initial contact has turned into a regular monthly radio segment the author now does with ABC radio on a specific parenting topic. To coincide with the radio segment, a piece is written on the same topic that appears that morning in The Conversation. The piece in The Conversation alerts readers to tune in to ABC radio and in turn, ABC radio refers readers to the Conversation. The guiding principle is to send one very clear message: that accessing evidence-based parenting support is good idea. To do this, researchers must both create and seize opportunities to engage their research to the community.

*Implications for graduate training.* A goal of this dissertation was not only to produce meaningful empirical data, but also to promote a training experience for the author that would provide a broad base of skills and capabilities. In particular, it was envisioned that specific skills and abilities would be learned that would assist with the capacity for innovation, entrepreneurship and engaged research—skills that would assist in forging a career in academia, or equally outside of academia, where other jobs exist. This goal was driven by a belief that the academic landscape is undergoing rapid transformation and any doctoral project ought to be accompanied by a well-considered strategic approach to graduate skills training that extends well beyond the rigours of research methodology. An obvious challenge, however, is that engagement can be daunting and difficult for younger career academics. Research has demonstrated that academic engagement tends to be pursued by scientists who are well established and well connected in the academic community (Perkman et al., 2013). The reason for this is that engagement is often enabled by a vibrant network of existing contacts and more experienced academics tend to have larger networks and hence greater capacity to engage.

Progress, however, is being made. At the time of finalising this thesis, and well after a decision to invest in building broad base skills was made, the Australian Government announced a review of graduate research training in Australia (Australian Government Department of Education and Training, 2015). The impetus behind the review was the understanding that research training has evolved beyond a focus purely on research related skills and is now more focused on preparing the graduate for the wider workplace and jobs outside academia. The head of the review, John McGagh, was cited in The Australian newspaper where he explained:

*“The graduate rather than the research per se is now regarded as the most important outcome of higher degree by research candidature.” (Trounson, 2015)*

Adding to this, findings were released from Australian company, Prospect Research and Marketing, who surveyed 850 students, 400 graduates, and 200 employers on measures of employability (Hare, 2015). The conclusions of the survey were that universities must develop methods of training graduate students in innovation and entrepreneurship. Surviving and thriving in academic or the private sector will necessitate students to have a full spectrum of skills, to be business savvy, and to be able to deal with broad ranging situations, circumstances, and people. They must be able to engage, communicate, and problem-solve beyond the research laboratory. This thesis heeds this call to action and provides some insight how this can be achieved.

The challenge is to discover innovative ways of increasing the engagement potential, and the associated skillset, of the next generation of academics. In this dissertation, much effort was placed into science communications and partnership formation and it is hoped some of the lessons learned through this candidate can be extended elsewhere. The data presented earlier in Figures 7.1 and 7.2 clearly attest to the potential success graduate level students can have in undertaking engaged research. Graduate training in the future should make it essential to provide a rich tapestry of resources and experiences that enable the graduate to conduct high quality research, to communicate with a wide variety of audiences, and to develop fruitful relationships with a diverse group of constituents. The current student was extremely fortunate to be the beneficiary of such an environment, chiefly enabled by his primary advisor.

### **Enhancing impact of research: The role of Commercialisation**

Undertaking research with impact is a priority for researchers worldwide. There are many methods of enhancing research impact that encompass strategies including community engagement in the research process, working with the media, and the transfer of new inventions into the community. Commercialisation is also seen as a key driver of impact within universities and a driver of broader economic prosperity. As outlined in the research engagement framework in Chapter One, it is also best understood as just one dimension within the broader strategic research engagement framework.

In the behavioural sciences, commercialisation of intellectual property is relatively rare and there are few well-established examples of how to do it effectively. However, a feature of the current body of work is that it unfolded in the context of a research group that has a well-established connection with a commercial partner. As indicated in the early sections of this dissertation, the Parenting and Family Support Centre (the home of this dissertation) is the international research and development hub for the Triple P-Positive Parenting Program. The University licenses a private company, Triple P International, to disseminate the program worldwide should the evidence support its efficacy and/or effectiveness. This is a celebrated mechanism of commercialised research that has demonstrated evidence of improving the health and wellbeing of individual children, their parents and the community (Uniquist, 2015). However, discussions relating to the opportunities and challenges that exist as a function of this relationship—especially in the context of undertaking doctoral research—are rarely documented. Described below are some observations pertaining to the implications of a commercial partnership within the process of undertaking doctoral research and endeavouring to innovate and engage.

### ***Opportunities***

*Enhancing reach and impact of intervention.* One of the key features of having a close working alliance with a commercial partner is that once interventions are found to be effective, there is a dedicated dissemination company that potentially is able to distribute the program worldwide. That is, the dissemination company has an established business model and path to market. Thus, new innovations can experience potentially far greater reach than what might have otherwise been possible. For the current dissertation, this means that the tailored version of Triple P for managing sibling conflict can now be further evaluated and then considered for broader dissemination, enabling it to have the possibility of a significant community-wide impact that would otherwise be far more difficult to achieve.

Dissemination of evidence-based psychological services can be a complex interplay between policy negotiations, dealing with non-government organisations, training practitioners, printing and translating resources. Hence, having an established, dedicated group to handle this not only makes things simpler for the researcher, but greatly increases the potential for positive social impact and policy influence. There are now over 60,000 practitioners who have delivered Triple P to millions of families worldwide (Sanders, 2014). This is an extraordinary statistic and one that points very favourably to the benefits of having a commercial partner associated with the research group.

*Enhancing academic output.* There is a wealth of research now available linking enhanced productivity on traditional academic outputs (e.g., publishing, grant income) to commercialisation (Agrawal & Henderson, 2002; Azoulay, Ding, & Stuart, 2007; Breschi, Lissoni, & Montobbio, 2007; Fabrizio & Di Minin, 2008; Hughes et al., 2013). Perkman et al. (2013) demonstrated that

individuals' ability to mobilise resources for their research is also positively linked to collaboration with industry. Moreover, Lin and Bozeman (2006) found evidence that academics with industry exposure tend to supervise more students. For the current project, a very strong level of academic output was achieved throughout the candidature period. Although such output cannot be attributed to the commercial partner (as the program is not disseminated), the dissertation was strongly influenced by a highly outcome focussed research group.

In the case of Triple P more broadly, program dissemination (and the proliferation of the commercial operation) has been highly correlated to a major increase in research productivity. Figure 7.3 depicts the growth trajectory of Triple P research across the domains of published papers, authorial involvement, and countries reached. Of particular significance, the Figure reveals how the commencement of the commercial relationship with Triple P International triggered a clear step change in academic accomplishment.

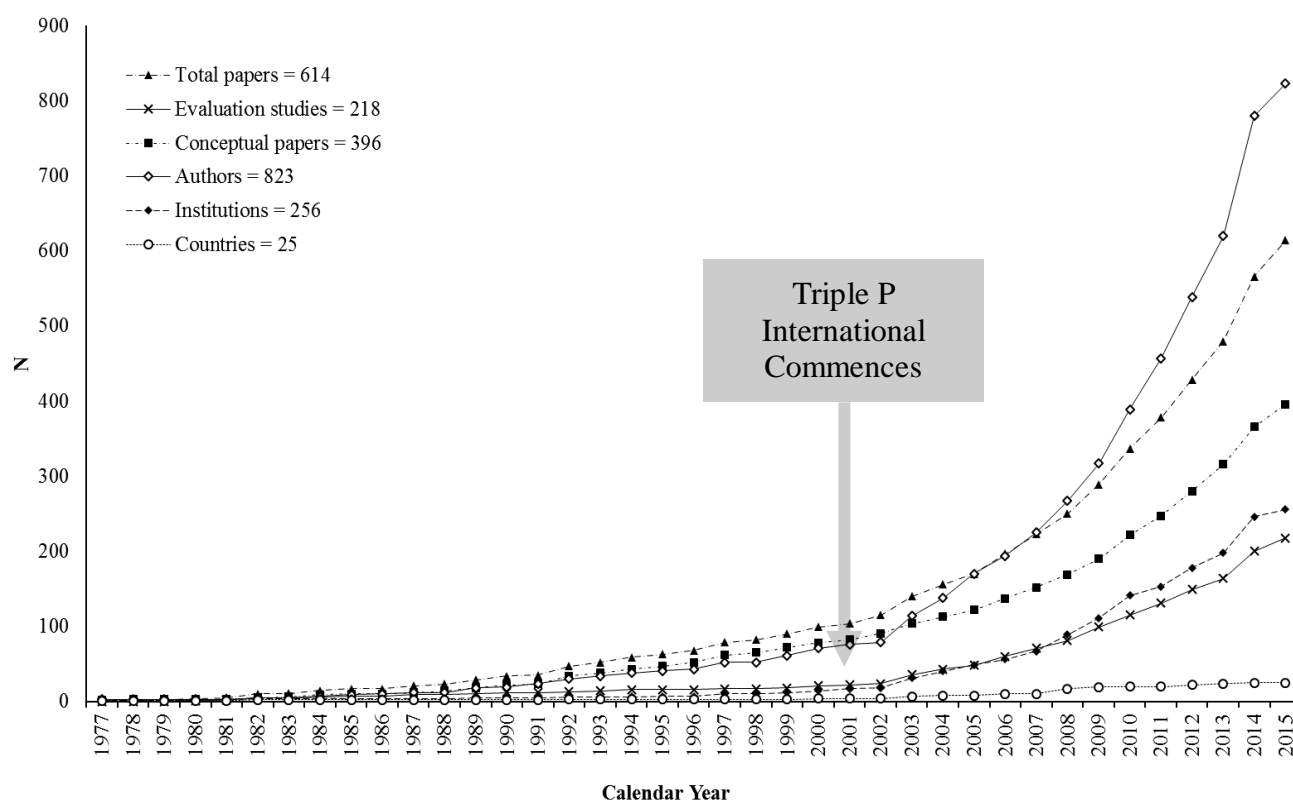


Figure 7.3. The historical growth of Triple P related research productivity (adapted from Sanders, 2014)

In the case of the current thesis, the project was undertaken from the outset with a view to simultaneously building academic outputs and leveraging the dissemination power enabled by the commercialisation company. This bidirectional process enabled a strong set of academic outputs to be achieved while pursuing a research project with a potential commercial implication. Importantly, however, new IP was not created as part of this project. Thus, there are no potential financial incentives implicated in the publication of this work for the author of this thesis.

*New revenue streams.* Diversifying revenue streams is a priority for universities worldwide. A commercial partner is one potentially useful way of increasing revenue returns to the university through shares in royalties from product dissemination. In the case of Triple P, royalties from program dissemination are paid to the University, the technology transfer company, and contributory authors. Applied to this dissertation, the data from the current project could be used alongside replications of this work to provide an evidential basis for broad scale training and dissemination of the brief discussion group variant of Triple P for improving sibling relationships. This, in turn, would create a new revenue stream back to the university to invest in ongoing research.

*Broadening student competencies.* Learning the language of commercialisation and gaining and understanding of the ingredients required to see a program embedded in the community is a terrific additional skillset that students can learn. Understanding the process of intellectual property, how it is created, and how it can enhance research impact is also very useful. Working closely with a commercial partner provides many opportunities to experience different aspects of the research process—especially within the realm of engagement—that would otherwise not be experienced. The gamut of experiential learning that is enabled through having a commercial partner can potentially provide students with an entire set of skills that their peers in other research groups may not receive.

### ***Challenges***

*Conflict of interest.* A common criticism of research with commercial applications is that the researchers stand to gain, often financially, through finding evidence that the program works. Conflict of interest will become increasingly relevant as an increasing number of researchers within the social and behavioural sciences successfully disseminate programs. It is, therefore, crucial that research groups have exemplary conflict of interest management plans in place that are routinely checked and audited by senior levels of university administration (Sanders, 2015). Such a plan is in place within the group this dissertation emerged from, including routine inclusion of conflict of interest statements in all manuscripts (including this dissertation).

*Complacency and/or turf wars.* A surprising complication that can arise within a group that has a commercial partner is a state of complacency or turf wars. Complacency and turf wars are best understood as opposite ends of the same problem. Program dissemination and the process of research engagement, as articulated throughout in this thesis, share many similarities. That is, many of the early drivers of effective program dissemination, such as building awareness in the community of program availability, promoting the evidence of parenting strategies, and helping parents' access programs, are fundamental to the innovation engagement framework outlined in this thesis. As a result, two issues can arise.

Complacency occurs within the research institution and refers to the situation where staff and students within the research group feel a diminished sense of responsibility, obligation, aspiration, or control over engaging with the community about evidence-based programs. Inadvertently, staff and students can fall into the trap of believing that conducting an evaluation of a particular intervention is their main responsibility and once that trial is complete and resources are prepared for dissemination, the process is handed over to the commercialisation team to handle the rest. The issue is that, as outlined in this dissertation, researchers have a pivotal role to play in engagement—namely, in taking evidence-based interventions to the community. Further, researchers tend to hold a sense of trustworthiness and expertise in the eyes of the community. Hence, researchers taking responsibility for alerting the community to the benefits and availability of evidence-based resources may carry greater gravitas and authority than messages conveyed by a for-profit company. Effort is needed to ensure staff and students within a successful commercialised research group protect and prioritise their responsibilities to engage the community in their research.

Turf wars originate from the dissemination organisation and become evident when the dissemination company develops a proprietorial stance over ‘external relations’—which could include such things as working with governments and policy makers, or working with the media to engage the community and build program awareness. As a result, the dissemination firm may endeavour to put in place measures to control messaging, press releases, timing of program announcements, and, in effect, limit research engagement. In the case of the current dissertation where 91 different science communication events took place (including 63 media events), it is clear how turf wars can potentially arise. Careful conversations are required between researcher and disseminator to clarify role expectations that ensure the integrity of the research process is preserved.

*Innovation inhibition.* Perhaps the most unexpected potential challenge of working with a commercial partner is the potential for “innovation inhibition”. Innovation inhibition refers to the process where the development of new ideas, products, technologies, or processes is limited by existing structures, personnel, or customs within an organisation. An example of innovation inhibition is evident through the lens of understanding paths to market.

As mentioned previously, the chief advantage of having a commercial partner is having a clear path to market once the intervention is developed. However, this can also present a limitation within the model. The dissemination company is likely to have a well-established, clearly defined, and highly invested business model that includes clear paths to market. This is an important consideration because when a new idea, innovation or technology arises that does not prospectively fit with the existing business model (path to market), either the dissemination firm has to be convinced that a new model should be explored or the researcher has to change tactic and/or find a

new partner. The problem is that it can be effortful, costly, and risky for a dissemination company to change or expand its business model; and equally challenging for a researcher to find a new commercial partner. Hence, a tendency to compromise, acquiesce, or “make it work” using the existing model can prevail. This compromised idea might indeed be worthwhile, but it may also lack the truly innovative spark that might otherwise have been unearthed.

A further consideration is that a new path to market may threaten the existing business model that the dissemination company is built on. For example, if an alternate, but highly effective parenting program could be developed that did not require practitioners to be trained, or was disseminable entirely through existing university structures (e.g., Massive Open Online Courses), it could mean a significant drop in revenue for the dissemination company. Thus, it is possible that exploration of new innovations may be stifled to the extent they may pose threats to previous technologies, paths to market, and ways of doing business. It also should be noted, however, that innovation can also be stifled from the research organisation towards the dissemination company. In the innovation arena, Triple P is a relatively unique case insofar that it is not a single piece of intellectual property that has been commercialised; it is a system of IP that undergoes constant evaluation and modification with an exclusively licensed commercial partner. Hence, a situation can arise where the commercial partner may request the research team explore a specific idea or innovation, but the research team refuses this request. Reasons for refusing this request may include lack of funding, lack of fit with strategic priorities, or conceptual, theoretical, and/or empirical shortcomings of the proposed idea.

While perhaps counterintuitive, the idea that innovation can be stifled in highly successful organisations is not new. Leonard (1992) argued in a seminal article that behaviours that are successful in one generation of innovation can become locked in and atrophied and thus do not adapt to respond to new challenges in new ways. The problem is that sometimes a step change that produces real, game changing innovation is required. A highly successful, but deeply encumbered commercial partner can, therefore, pose as an unexpected antagonist in the quest for cutting edge innovation. Moreover, Christensen (1997) argued that successful companies in one generation of technology don't succeed with subsequent generations because they get locked into conservative customers. It is always important, therefore, for truly unique and innovative ideas, including those that diverge from existing models, be explored. If nothing else, it is a safeguard against the very real risk of falling behind.

#### *Commercialisation in Context*

Consistent with the research engagement framework presented in Chapter One, the goal of research groups should be to contextualise their commercialised engagement activities as just one aspect of engagement. While important, commercialisation is only one way of academic research

increasing its impact and contribution to society. Hughes and Kitson (2012) demonstrated that commercialisation was the least prevalent form of academic engagement with external organisations, whereas people-based activities were the most common—especially within the behavioural sciences. This finding was consistent with D’Este and Perkman (2011) who also conducted a survey of academics and concluded that the primary motivation for academics to engage with industry was to further their research rather than to commercialise their knowledge.

When the definition of engagement is broadened to extend beyond indices of commercialisation and revenue diversification, it is clear that academics are undertaking more engagement than initially thought. This finding has important implications in the behavioural sciences, where there is a growing call for psychology and other related disciplines to better engage with other disciplines and to undertake research that has measurable impact in the community across wide-ranging domains (see Kazdin, 2009).

As articulated by Dodgson and Gann (2010) universities need to move beyond the relatively narrow focus of engagement that prioritises commercialised transfer of intellectual property as the defining mechanism of engagement. In moving beyond this definition, researchers can tune in to new opportunities for collaboration and to the creation and transfer of new educational and research ideas to the community. In this way, a broader definition of engagement becomes possible. This broader conceptualisation is captured in the innovation engagement framework presented in Chapter One. In the framework, commercialisation is just one example of the intermediary mechanisms that connect ideas to impact.

To explain this shift in thinking, Dodgson (2015) coined the idea that we are moving towards the “fully engaged” university. The fully engaged university explores problems with an external partner (e.g., company, government agency, charity, professional association) that concerns itself with the joint definition of the problem, the conduct of the research, and use of its outcomes. The fully engaged university requires a strategic repositioning of university priorities and a commitment to engagement across the entire spectrum of the research process. It also necessitates a willingness of individual academics to reposition their own thinking about the work they do and the value they place on engagement activities. The fully engaged university is not focussed on just the commercialisation of intellectual property. It is also market-facing, rather than market led. Market facing universities value the needs and demands of the community, who in turn, can be active participants in the research process and can support the discovery of valued outcomes. Being market facing also helps overcome the potential problems associated with unintentionally overvaluing commercialisation and offsets the concerns about the marketisation of research. It is the mandate of individual research groups to adopt the philosophy of market facing research practices in the pursuit of innovation and impact.



## **New horizons**

Much has been learned in this dissertation relating to the design of evidence-based programs, evaluating them, and then engaging the community with them. Much has also been learned about the skills and competencies required to bring about meaningful research outcomes that transcend the journal publisher's typesetter. It is important to consider what is still yet to be realised.

Fundamentally, the work described throughout this dissertation speaks to the issue of how to engage a community and create an intervention to bring about some kind of meaningful change in attitude or behaviour within that community. In other words, this dissertation has attempted to define some of the essential ingredients needed to develop population-level behaviour change programs. When conceptualised in such terms, there are potentially many major global challenges that this kind of knowledge and thinking can be applied to. In particular, there are grand challenges facing societies all around the world that create a fundamental need to do something differently.

An example of such a challenge is how people access energy in either high- or low-resource settings. What is the role of behavioural science in piecing together the elements needed to bring about sustainable change to the way households use electricity in Brisbane; or how remote villagers utilise solar technology in rural India? Another example is how principles of behavioural science could be adopted to help communities in low resource settings change the way they interact with their natural environment. Destruction of coral reefs, mangroves, sea grass and over fishing are major problems affecting people's livelihoods and food security globally. Multi-disciplinary solutions are required that have, at their core, an understanding of human behaviour (World Bank, 2015). The challenge is for behavioural scientists use their knowledge to contribute solutions for these global issues.

A further challenge on the horizon is the role of digital innovation and technology within the behavioural sciences landscape. The behavioural and psychological sciences are often hamstrung by question marks over the fidelity, sensitivity, and impartiality of measurement techniques used to infer effectiveness outcomes. Although progress is being made on clearly defining the necessary standards of evidence in prevention science (Gottfredson et al., 2015), it is worth considering how big data, data linkage, and digital innovation can be leveraged to bring about innovative ways of improving psychological measurement. For example, wearable technologies that monitor individuals' biological markers, mood, and capture self-report data. Is it feasible to have participant pools that run into the thousands, comprising people from multiple nations, rather than isolated trials in typically affluent communities? How will digital innovation interact with the personalisation of services to change the way we approach population-level behaviour change programs?

Moving beyond research methods, the creation of innovative, engaging, physical spaces is crucial to the long term viability of research groups (and universities) such as the one this dissertation was undertaken in. Innovative, experientially focused environments that co-locate diverse disciplines are crucial ingredients to the broadening the pipeline of idea creation and potential for social impact. It also is a key element to enhancing graduate training. Graduates will benefit from being immersed in an engaging, experientially enriched environment that provides them with routine opportunity to practice the broad base of skills they will require for the diverse career paths available to them. Engagement skills and competencies should not be seen as “value-add extras” within the graduate training experience. They are fundamental. The methods, processes, and experiences learned through this dissertation may provide some insights into how to create enhanced training programs for graduate students in universities.

The various activities, experiences, and lessons learned through completing this dissertation have led to one final observation: psychologists need to step up. The world has never been better connected. The capacity for innovation, entrepreneurship, and engagement to emerge from within university groups to create meaningful impact the world has never been more viable. We are faced with global challenges that are now visible from our laboratory windows. What is abundantly lacking, however, is the presence of psychologists in bringing innovations to scale to improve human behaviour and wellbeing. Psychologists also are needed to help universities better create ‘innovation ecosystems’ that provide the best possible environments for innovation to flourish. Psychologists’ understanding of human decision making, biases, perception, teamwork, human development, performance management, organisational leadership, and the list goes on, is crucial to improving the world. The call to psychologists, therefore, is twofold: to demonstrate how to take interventions to scale that successfully change the way people behave and positively influence citizens right across the world, regardless of their circumstance; but also to realise that we have a role to play in helping universities change the way they behave. Psychologists are well placed to help shape the right context for innovation to take place and the factors needed to bring about impact in the community.

## **Conclusion**

This dissertation adds to the existing literature in at least three important ways. It was shown how a positive parenting program could be developed and applied to improving sibling relationships. Further, it was demonstrated how to successfully engage a community in the process of designing an intervention. Finally, this work illustrated how to maintain engagement with that community throughout the research process. Collectively, the outcomes of this dissertation not only add important new knowledge to the field, but provide a critical analysis of the factors surrounding innovation and engagement that enabled the dissertation to take place.

A final message to emerge from this thesis is essentially a call to action. If universities and doctoral theses such as this are successfully going to contribute impactful research to the community, then enhancement of the core skills and competences of our academic cohort is needed. It will become increasingly important for future academics not only to understand the intricacies of research methodology, but also to have an equal level of understanding of the intricacies of innovation and engagement. In some small way, it is hoped that the combination of research methodology, innovation, and engagement that weaves its way through this dissertation provides some insights into how this might be achievable. The valued outcome for this candidate was to conduct research that has, at its core, the mission of contributing knowledge that would help create positive impact through improving human wellbeing.

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## Appendix A

## Parenting and Family Adjustment Scale (PAFAS)

Please read each statement and select the response that indicates how true the statement was of you over the past 4 weeks in relation to the **target child/sibling of the target child**. There are no right or wrong answers. Do not spend too much time on any statement.

	Not at all	A little	Quite a lot	Very much
1. If my child doesn't do what they're told to do, I give in and do it myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I give my child a treat, reward or fun activity for behaving well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I follow through with a consequence (e.g. take away a toy) when my child misbehaves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I threaten something (e.g. to turn off TV) when my child misbehaves but I don't follow through	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I shout or get angry with my child when they misbehave	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I praise my child when they behave well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I try to make my child feel bad (e.g. guilt or shame) for misbehaving to teach them a lesson	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I give my child attention (e.g. a hug, wink, smile or kiss) when they behave well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I spank (smack) my child when they misbehave	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I argue with my child about their behaviour / attitude	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I deal with my child's misbehaviour the same way all the time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I give my child what they want when they get angry or upset	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I get annoyed with my child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I chat / talk with my child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I enjoy giving my child hugs, kisses and cuddles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I am proud of my child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I enjoy spending time with my child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I have a good relationship with my child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I feel stressed or worried	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I feel happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Not at all	A little	Quite a lot	Very much
21. I feel sad or depressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. I feel satisfied with my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. I cope with the emotional demands of being a parent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Our family members help or support each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. Our family members get on well with each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Our family members fight or argue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. Our family members criticize or put each other down	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Do you have a partner?

- No  
 Yes

If yes, how true is this of you?

	Not at all	A little	Quite a lot	Very much
28. I work as a team with my partner in parenting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. I disagree with my partner about parenting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. I have a good relationship with my partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Scoring Key for the PAFAS

All 43 items are rated from 0 to 3. Note that shaded items in the scoring key below must be reverse scored (i.e. 0=3, 1=2, 2=1, 3=0) before summing the Total Score for each subscale. There are five subscales which can be interpreted using the table below.

SUBSCALE	INTERPRETATION	POSSIBLE RANGE
Parenting Practices	Higher scores indicate higher use of dysfunctional parenting.	0-54
Parental Adjustment	Higher scores indicate more difficulties with parental mood or adjustment.	0-15
Family Relationships	Higher scores indicate worse family relationships.	0-12
Parental Teamwork	Higher scored indicate less partner support and parent teamwork.	0-9

Item	Enter Score	Item	Enter Score
<b>Parenting Practices Subscale</b>		<b>Parental Adjustment Subscale</b>	
1	If my child doesn't do what they're told to do, I give in and do it myself	19	I feel stressed or worried
2	I give my child a treat, reward or fun activity for behaving well	20	I feel happy
3	I follow through with a consequence (e.g. take away a toy) when my child misbehaves	21	I feel sad or depressed
4	I threaten something (e.g. to turn off TV) when my child misbehaves but I don't follow through	22	I feel satisfied with my life
5	I shout or get angry with my child when they misbehave	23	I cope with the emotional demands of being a parent
6	I praise my child when they behave well	<b>Total</b>	
7	I try to make my child feel bad (e.g. guilt or shame) for misbehaving to teach them a lesson	<b>Family Relationships</b>	
8	I give my child attention (e.g. a hug, wink, smile or kiss) when they behave well	24	Our family members help or support each other
9	I spank (smack) my child when they misbehave	25	Our family members get on well with each other
10	I argue with my child about their behaviour/attitude	26	Our family members fight or argue
11	I deal with my child's misbehaviour the same way all the time	27	Our family members criticize or put each other down
12	I give my child what they want when they get angry or upset	<b>Total</b>	
13	I get annoyed with my child	<b>Parental Teamwork</b>	
14	I chat/talk with my child	28	I work as a team with my partner in parenting
15	I enjoy giving my child hugs, kisses and cuddles	29	I disagree with my partner about parenting
16	I am proud of my child	30	I have a good relationship with my partner
17	I enjoy spending time with my child	<b>Total</b>	
18	I have a good relationship with my child	<b>Total</b>	



## Appendix B

## Child Adjustment and Parent Efficacy Scale (CAPES)

Please think about which of your two children's behaviour you are more concerned about. This child will be referred to as **the target child/the sibling of the target child** for the remainder of the survey.

Please read each statement and select the response that indicates how true the statement was of the target child over the past 4 weeks.

Then, using the below response scale, down the number next to each item that best describes how confident you are that you can successfully deal with the target child's behaviour, even if it is a behaviour that rarely occurs or does not concern you.

From 1 (Certain I can't do it) to 10 (Certain I can do it)

There are no right or wrong answers. Do not spend too much time on any statement.

My child:

	How true is this of your child?				Rate your confidence
	Not at all	A little	Quite a lot	Very much	Enter value between 1-10
1. Gets upset or angry when they don't get their own way	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
2. Refuses to do jobs around the house when asked	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
3. Worries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
4. Loses their temper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5. Misbehaves at mealtimes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
6. Argues or fights with other children, brothers or sisters	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
7. Refuses to eat food made for them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
8. Takes too long getting dressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
9. Hurts me or others (e.g., hits, pushes, scratches, bites)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
10. Interrupts when I am speaking to others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
11. Seems fearful and scared	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

	How true is this of your child?				Rate your confidence
	Not at all	A little	Quite a lot	Very much	Enter value between 1-10
12. Has trouble keeping busy without adult attention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
13. Yells, shouts or screams	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
14. Whines or complains (whinges)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
15. Acts defiant when asked to do something	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
16. Cries more than other children their age	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
17. Rudely answers back to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
18. Seems unhappy or sad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
19. Has trouble organising tasks and activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

My child:

	Not at all	A little	Quite a lot	Very much
20. Can keep busy without constant adult attention	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Cooperates at bedtime	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Can do age appropriate tasks by themselves	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Follows rules and limits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Gets on well with family members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. Is kind and helpful to others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Talks about their views, ideas and needs appropriately	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. Does what they are told to do by adults	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Scoring Key for the CAPES

**Child Emotional and Behavioural Problems Scale:** 27 items (rating scale 0–3). Note that shaded items (in bold) must be reverse scored (i.e. 0=3, 1=2, 2=1, 3=0). To obtain an *Emotional Problems Subscale Score*, sum items 3, 11, 18, with a possible range from 0-9. To obtain a *Behavioural Problems Subscale Score* sum all remaining items, with a possible range from 0-72. To obtain a *Total Intensity Score* add the *Emotional Problems Subscale* and the *Behavioural Problems Subscale Scores* together, with a possible range from 0-81. Higher scores indicate greater levels of child emotional or behavioural problems.

**Parent Efficacy Scale:** sum all parent confidence ratings (rating scale 1–10). Note that there are no parent confidence ratings for shaded items. Possible range for the *Total Score* is 19–190, with higher scores indicating greater levels of parent efficacy.

**Table 1. Scoring key for the CAPES**

ITEM	Reverse score shaded items (i.e. 0=3, 1=2, 2=1, 3=0)	PARENTAL SELF- EFFICACY
<b>Emotional maladjustment</b>		
	3	
	11	
	18	
<b>Behavioural Problems Subscale</b>		
	1	
	2	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	12	
	13	
	14	
	15	
	16	
	17	
	19	
	<b>20</b>	
	<b>21</b>	
	<b>22</b>	
	<b>23</b>	
	<b>24</b>	
	<b>25</b>	
	<b>26</b>	
	<b>27</b>	
<b>Total Intensity Score</b>		





	Verbal conflicts			Physical conflicts		
	Never	Sometimes	Often	Never	Sometimes	Often
18. Asked each child about their feelings about what happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Told the children that they would be punished if they did not stop fighting, fully intending to carry through with the threat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Withdrew privileges for one or both children.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Decided not to go in and to let the children resolve the conflict on their own.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Helped the children to use words to express their feelings to each other.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Used time out - for example, removed one or both children from the conflict to let them to cool down and think about what had happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Told the children how I felt about their fighting, for example, unhappy, angry.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. Yelled at one or both children for fighting.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Removed the object they were fighting about.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. Other:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you indicated 'Other' please list the method:

---



	Verbal conflicts			Physical conflicts		
	Very Ineffective	Neutral	Very Effective	Very Ineffective	Neutral	Very Effective
16. Told the children that they would be punished if they did not stop arguing, not intending to carry through with the threat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Told the children that the problem was between them and they needed to talk to each other.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Asked each child about their feelings about what happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Told the children that they would be punished if they did not stop arguing, fully intending to carry through with the threat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Withdrew privileges for one or both children.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Decided not to go in and to let the children resolve the conflict on their own.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Helped the children to use words to express their feelings to each other.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Used time out - for example, removed one or both children from the conflict to let them to cool down and think about what had happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Told the children how I felt about their arguments, for example, unhappy, angry.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. Yelled at one or both children for fighting.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Removed the object they were arguing about.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. Other:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If you indicated 'Other' please list the method: \_\_\_\_\_



**“How do you Manage Children’s Conflicts?”**  
**L. Kramer & C. Washo (1999)**  
**Scoring**

Using Form A of the Instrument:

Child-centered strategies:	Items 1, 4, 7, 10, 12, 17, 18, 22, 24
Parental Control:	Items 2, 5, 6, 8, 9, 11, 14, 15, 16, 19, 20, 23, 25, 26
Passive Non-intervention:	Items 3, 13, 21

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	If this is a problem, how easy would it be for you to improve this if you wanted to?					How much would you like help with this?		
	Very Difficult	Difficult	Neutral	Easy	Very Easy	No help	A little help	A lot of help
21. Teaching (how to play a game, how to read, etc)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Affection (hugging, kissing, saying "I love you," etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Trying to control each other's behaviour using phrases like "Don't do that," "Stop it," or "Leave me alone"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Being kind or nice to one another	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. Going to each other for advice/support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Sharing inner secrets and feelings with each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. Teasing or annoying each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Overall, how well would you say your children get along with one another?

- 1 Very poorly
- 2
- 3
- 4 Neutral
- 5
- 6
- 7 Extremely Well

PEPC-SRQ  
Scoring Instructions

Laurie Kramer  
University of Illinois

I. Scoring Parental Standards or Expected Sibling Relationship Quality (Part I of PEPC-SRQ)

1. Standards for Warmth: Sum items 2, 4, 6, 8, 10, 12, 14, 15, 17, 19, 21, 22, 24, 25, 26
2. Standards for Agonism: Sum items 1, 9, 11, 13, 16, 18, 20, 23, 27
3. Standards for Rivalry/Competition: Sum items 3, 5, 7

To facilitate comparisons across scales you may re-code data using a linear transformation:

$$\frac{\text{raw scale score} - \text{lowest possible score} \times 10}{\text{highest possible} - \text{lowest possible score on original scale}}$$

For Warmth, the lowest possible score is 15, highest possible score is 80

For Agonism, the lowest possible score is 9, highest possible score is 45

For Rivalry/Competition, the lowest possible score is 3, highest possible score is 15

Possible scores on the transformed scales will range from 0 to 10.

II. Scoring Perceived Sibling Behaviours (Part II of PEPC-SRQ)

Use ratings of from the first questions (How frequently would you say each of the following occurs in your children's relationship?)

1. Perceived Warmth: Sum items 2, 4, 6, 8, 10, 12, 14, 15, 17, 19, 21, 22, 24, 25, 26
2. Perceived Agonism: Sum items 1, 9, 11, 13, 16, 18, 20, 23, 27
3. Perceived Rivalry/Competition: Sum items 3, 5, 7

Again, to facilitate comparisons across scales, re-code data using the equation above.

III. Computing Discrepancy Scores

Use transformed scores to compute:

$$\text{Discrepancy Score} = \text{Parental Standards} - \text{Perceived Behaviour}$$

Positive discrepancy scores indicate that parents expect to see more of a given sibling behaviour (e.g., Warmth, Agonism, Rivalry/Competition) than they are currently observing with their children, whereas negative discrepancy scores indicate that parents expect to see less of a given sibling behaviour than they are currently observing. Parental perceptions of sibling relationship quality may be described as most prosocial when responses on the PEPC-SRQ yield negative discrepancy scores for Warmth and positive discrepancy scores Agonism and Rivalry/Competition.

# THE CONVERSATION

## The Gallaghers, the Stefanovics and the Rineharts: what's behind sibling rivalries?

April 7, 2015 6.08am AEST

**John Pickering**

Research Manager at The University of Queensland



Like those that can't live without their siblings, there are those like music's Gallagher brothers who can't stand the sight of one another. freschwill

How we get along as siblings is a deeply personal issue and profoundly affects our lives as individuals. It's an issue that crosses cultures and economies, levels of class and fame.

This point was reinforced to me when I did an interview on the Today Show about the importance of sibling conflict. Co-host Karl Stefanovic torpedoed in at the end and dismissed everything I was saying as nonsense. He made it clear that his lifelong domination of his younger brother, Peter, is perfectly normal and acceptable. If anything he seemed to be very proud of it.

Interestingly enough, Peter is also a successful journalist, but has nowhere near the popularity – and likely the pay packet – of his brother.

What is striking is the paradox of sibling relationships. People will often tell you that the bond they have with their sibling or siblings is incredibly special. It's unlike any other relationship they have. It is sacred, special and highly functional. After all, where would the aviation world be without the Wright brothers, the music world without the Jacksons or politics without the Kennedys?

However, it's not hard to spot plenty of examples of where sibling rivalry and conflict is the source of lifelong, deep-seated hostility and anger. Like those that can't live without their brother or sister, there are those like music's Gallagher brothers, who can't stand the sight of one another and never want to see each other again.

As mining magnate Gina Rinehart's kids will tell you, sibling relationships can tear families apart. They can also be very costly.

So why is this? Why do some sibling relationships go so well, and yet others so badly? But more importantly, does it actually even matter whether you love or hate your brother or sister? The short answer: yes. And it probably matters far more than we think.

### **A look at the sibling relationship**

The sibling relationship is the longest relationship we have. It typically lasts longer than our relationship with our parents, our romantic partner, children, friends and work colleagues. In developed, Western countries, around 80% of people have a sibling.

An example of the power and importance of the sibling relationship is found in a study that showed the strongest predictor of well-being at age 65 among male Harvard alumni was the quality of their sibling relationships during college.

The sibling relationship is best understood as the training ground for life. From the earliest age, our siblings teach us the basics about life:

how to share; how to take turns; how to love and nurture; how to reason and solve problems; how to negotiate; how to cope with disappointment; how to get back up after being defeated.

But the influence of siblings goes well beyond learning how to wait for your older brother to finish his turn on the computer before you can have a go. Siblings have a significant impact on key



From the earliest age, our siblings teach us the basics about life.  
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developmental milestones including the acquisition of interpersonal skills, cognitive development and sensitivity, emotional development and adjustment, social understanding, sharing and social skills, and socio-cognitive reasoning skills.

### **Blood is thicker than water – or is it?**

Argy bargy between siblings is normal. There's no shortage of scientific evidence, let alone public opinion, which converges on the relevance and importance of a bit of rough and tumble play and healthy competition between siblings.

Constructive sibling conflict is important developmentally and can help children learn important skills, like how to be assertive without being aggressive. The question worth asking here is what – if any – problems are associated with elevated conflict between siblings.

Sibling relationships marked by elevated levels of hostility and conflict are associated with a number of potentially very serious consequences including delinquent behaviour, behavioural problems in adolescence, and the development of some serious mental health and behavioural problems such as depression, anxiety and self-harm. Sibling conflict in adolescence has also been found to correlate with adult romantic relationship conflict.

Some experts even suggest that sibling conflict should be recognised as the most common form of bullying.

The onset of sibling conflict has been linked to many different factors, such as the age gap between siblings, birth order, gender constellation, developmental stage, peer influences, parental marital status and conflict, parent gender, parent behaviour and parental favouritism.

Parents clearly play a significant role.

### **The role of parents**

I have written previously that we should be careful of being too critical of parents. We should be embracing their appetite for knowledge and evidence and using this to everyone's advantage. The better skilled and equipped parents are, the better off society will be.

It is parents who are at the heart of the sibling paradox. Research has found that although parents are worried about sibling conflict, they see it as perfectly normal. However, it turns out that parents

are right in their concerns. Research clearly supports the view that parents exert a profound effect on their children's relationships.

For example, one recent study trained parents to mediate their children's conflicts and demonstrated how parents' involvement in conflict behaviours not only led to a reduction in fighting between the children, but that the children were able to replicate the mediation skills they experienced through their parents.

Another study of 65 families of predominantly Mexican descent identified that supportive and democratic parenting and positive family expressivity were associated with sibling relationships defined by high warmth and low agonism. This indicates that positive parenting practices may well be implicated in the mechanisms of reducing sibling conflict.

### **A final word**

Sibling relationships are dynamic and evolve over a lifetime. Like all relationships we have they can naturally vary in their strength, intensity and quality. However, it is a mistake to conclude that conflict ultimately brings siblings closer together.

The better way to understand the sibling relationship is that it is an ideal platform for children to learn the skills and abilities for them to do well in life. Parents can play an enormously important role in helping their children navigate their relationship and ensuring that their children are on the best possible development trajectory.



Research supports the view that parents exert a profound effect on their children's relationships.  
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*You can watch John Pickering and others discussing sibling relationships on the April 7 episode of SBS program Insight. If you would like to participate in a brief (30 second) survey on your views on sibling relationships, [click here](#).*