



The Impact of Message Content and Format on Initial Parental Engagement in a Parenting Intervention: An Experimental Study

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Abstract

Background Engagement strategies are commonly used to enhance parents' involvement in parenting interventions. However, few strategies have been evaluated to determine their effectiveness at increasing initial engagement. This study tested the effectiveness of message content (benefits vs. costs) and format (video vs. written) of engagement strategies on the initial engagement (i.e., recruitment, enrolment, and first attendance) of parents to parenting interventions.

Methods Participants were 692 parents of children aged 2 to 12 years old. Parents were randomly allocated to one of four experimental conditions, which tested the combination of message (benefits vs. costs) and format (video vs. written). Recruitment, enrolment, and first attendance were measured as part of parent's initial engagement to a self-directed parenting intervention.

Results Neither message content nor format had an effect on recruitment, enrolment, or first attendance. However, parents who saw the costs content were significantly more likely to review the intervention workbook compared to parents who saw the message about the benefits of the intervention.

Conclusions Brief testimonials have the potential to early engage parents when the message is positive, independently of its format. Future research should further explore the effects of different messages as well as other engagement strategies used to engage parents.

Trial Registration Australian New Zealand Clinical Trials Registry ACTRN12618001282279, *prospectively registered 30/07/2018*.

Keywords Parents · Parental engagement · Engagement strategies · Parent training · Experimental design

Although the existing literature emphasises the importance of enhancing parental engagement in parenting interventions, low participation rates remain a critical issue (Chacko et al., 2016). In response, several studies have focused on the conceptual understanding of the engagement process itself (McCurdy & Daro, 2001; Piotrowska et al., 2016; Staudt, 2007) and identifying strategies to engage parents more effectively (Morawska et al., 2011b; Salari & Backman, 2016; Winslow et al., 2016). This study builds upon

this evidence to expand understanding of how to more effectively engage parents in parenting interventions.

Parental engagement is a multistage process where much research has focused on engagement during the intervention (Chacko et al., 2016), but comparatively less has examined the initial stages of parental engagement including recruitment, enrolment, and first attendance. This is, therefore, the focus of this study. *Recruitment* is defined as the process of attracting parents' interest in a parenting intervention, *enrolment* as the parent's decision to engage in an intervention, and *first attendance* as their completion of the first action required for an intervention, such as attending the first session (Gonzalez et al., 2018).

Throughout the engagement process, several strategies can be implemented to enhance parents' engagement with an intervention. An *engagement strategy* refers to any action to introduce a parenting intervention to parents to enhance their engagement (Gonzalez et al., 2018). Of the wide range

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of engagement strategies used for initial parental engagement in studies of parenting interventions (Morawska & Sanders, 2006; Shaffer et al., 2001), experimental studies have only tested six engagement strategies, i.e., monetary incentive (Dumas et al., 2010; Gross et al., 2011), setting (Heinrichs, 2006), testimonial (Morawska, Nitschke, et al., 2011; Winslow et al., 2017), advertisement (Barnett et al., 2019; Salari & Filus, 2017), social norms (Abraczinskas et al., 2020; Epstein et al., 2019; Ohan et al., 2020), and engagement package (Winslow et al., 2016). However, studies have shown mixed results. An advertisement focused on the promotion of child wellbeing showed a positive effect on recruitment (Salari & Backman, 2016). Monetary incentives (Dumas et al., 2010; Heinrichs, 2006), a testimonial (Winslow et al., 2017), and social norms (Abraczinskas et al., 2020) have significantly increased enrolment rates. Testimonials (Winslow et al., 2017) and an engagement package translated into higher rates of first attendance in an intervention (Winslow et al., 2016). The rest of the strategies have shown no significant effect on initial engagement (Gross et al., 2011; Heinrichs, 2006; Morawska, Nitschke, et al., 2011) or have not been tested in other engagement stages.

A number of theoretical frameworks have been used to design engagement strategies. Theories of health-related behaviour have been used to inform the design and empirical testing of engagement strategies, such as the health belief model (Winslow et al., 2017), theory of planned behaviour (Winslow et al., 2016), the self-regulatory focus theory (Salari & Backman, 2016), and other health behaviour theories (Morawska, Nitschke, et al., 2011). For engagement strategies based on incentives, operant conditioning and behavioural economics have influenced study design (Gross et al., 2011). Studies have also incorporated the principles of social influence (Winslow et al., 2017) and direct-to-consumer marketing (Barnett et al., 2019). Some of these studies have reported significant increases in the engagement rates when engagement strategies included the ‘active’ ingredients of such theories (Salari & Backman, 2016; Winslow et al., 2016, 2017), whereas others showed no significant impact (Morawska, Nitschke, et al., 2011). However, the majority of these studies tended to design engagement strategies integrating several aspects of these theories, from which the variance explained by each of the components separately remains unclear. Of the few theories developed to understand parental engagement (McCurdy & Daro, 2001; Piotrowska et al., 2016; Staudt, 2007), two studies have empirically evaluated these theories in the context of parenting interventions, particularly the Integrated Theory of Parent Involvement (Damashek et al., 2011) and the Connect, Attend, Participate, Enact model (Ohan et al., 2020). However, these studies focused on specific aspects,

e.g., family risk, family demographics, provider factors, and program characteristics (Damashek et al., 2011), and social norms (Ohan et al., 2020). Thus, much work remains to identify modifiable factors for initial engagement.

The Health Belief Model (HBM) is one of the most common theoretical approaches used in the understanding of parental engagement (Rosenstock et al., 1988). Based on the HBM, parents are more likely to engage in a parenting intervention if they perceive that their children are susceptible to developing behavioural problems (susceptibility), that the consequences of these problems would be severe (severity), and that parenting intervention may be beneficial compared to the potential costs of their participation. There is some evidence applying the HBM to initial parental engagement, particularly linked to parents’ intention to participate in parenting interventions (Salari & Filus, 2017; Spoth & Redmond, 1995; Spoth et al., 2000; Thornton & Calam, 2011). Across these four studies, benefits have shown a significant positive impact on intention; whereas costs showed a significant effect on intention in three of these studies (Salari & Filus, 2017; Spoth & Redmond, 1995; Spoth et al., 2000). Intention to participate has shown to be a significant predictor of enrolment (Spoth et al., 2000) and a significant but moderate predictor of first attendance to intervention (Winslow et al., 2017), but evidence regarding the impact of health-behaviour constructs on enrolment and first attendance is scarce. Thus, this study will focus on evaluating engagement strategies addressing the benefits and costs of a parenting intervention.

There are costs associated with the implementation of parenting interventions ranging from training of a practitioner workforce to the resources required to enhance parents’ engagement with parenting interventions. It has been estimated that a public health system offering different formats of an evidence-based parenting interventions costs less than \$12 per child (Foster et al., 2008). In terms of costs associated with initial parental engagement, Edwards et al., (2007) reported that the recruitment of parents represented 7% of the total cost of running a parenting intervention, whereas costs of enrolment and first attendance were not specified. Therefore, there are ‘gateway’ costs of implementing these interventions at a population level, which need further attention in order to secure efficient use of those resources to benefit as many families as possible.

There is an urgent call for more theory-driven experimental studies providing strong evidence regarding effective engagement strategies (Gonzalez et al., 2018; Winslow et al., 2017). Given that engagement strategies are usually offered as a package in ‘real world’ practice, the effect of each element remains unclear. Specific elements need to be manipulated in controlled conditions in order to establish which elements are effective, in addition to ensuring

that the elements tested are also feasible to implement by practitioners in their everyday practice (Dumas et al., 2010; Morawska, Nitschke, et al., 2011).

Current Study

The majority of the evidence of factors influencing initial parental engagement comes from health behaviour theories, particularly the HBM (Salari & Filus, 2017; Spoth &

Table 1 Characteristics of the Sample and HBM Benefits and Costs Questionnaire

	Benefits- Video <i>n</i> (%)	Benefits- Written <i>n</i> (%)	Costs- Video <i>n</i> (%)	Costs- Written <i>n</i> (%)	Total Sample <i>n</i> (%)
Marital status					
Married	128 (73.6)	124 (75.6)	134 (74.0)	121 (69.9)	507 (73.3)
Cohabiting/Defacto	29 (16.7)	20 (12.2)	26 (14.4)	38 (22.0)	113 (16.3)
Divorced/Separated	11 (6.3)	11 (6.7)	14 (7.7)	7 (4.0)	43 (6.2)
Single	6 (3.4)	9 (5.5)	7 (3.9)	7 (4.0)	29 (4.2)
Parent educational level					
Primary school or less	0 (0.0)	0 (0.0)	1 (0.6)	0 (0.0)	1 (0.1)
Some high school	13 (7.5)	5 (3.0)	5 (2.8)	4 (2.3)	27 (3.9)
Completed high school	9 (5.2)	17 (10.4)	16 (8.8)	18 (10.4)	60 (8.7)
Trade/technical college qualification	40 (23.0)	37 (22.6)	36 (19.9)	29 (16.8)	142 (20.5)
University degree	63 (36.2)	48 (29.3)	75 (41.4)	68 (39.3)	254 (36.4)
Postgraduate degree	49 (28.2)	57 (34.8)	48 (26.5)	54 (31.2)	208 (30.1)
Employment					
Full-time	78 (44.8)	57 (34.8)	75 (41.4)	73 (42.2)	283 (40.9)
Part-time	51 (29.3)	74 (45.1)	59 (32.6)	64 (37.0)	248 (35.8)
Not working, but looking for a job	9 (5.2)	5 (3.0)	16 (8.8)	8 (4.6)	38 (5.5)
Home-based paid work	11 (6.3)	5 (3.0)	10 (5.5)	6 (3.5)	32 (4.6)
Not working	25 (14.4)	23 (14.0)	21 (11.6)	22 (12.7)	91 (13.2)
Essential expenses not covered					
No	129 (74.1)	124 (75.6)	138 (76.2)	142 (82.1)	533 (77)
Yes	44 (25.3)	39 (23.8)	43 (23.8)	29 (16.8)	155 (22.4)
Do not know	1 (0.6)	1 (0.6)	0 (0.0)	2 (1.2)	4 (0.6)
Left over finances					
Enough that I/we can comfortably purchase most of the things we really want	69 (39.7)	64 (39.3)	70 (38.7)	69 (39.9)	272 (39.4)
Enough that I/we can purchase only some Of the things we really want	69 (39.7)	62 (38.0)	69 (38.1)	73 (42.2)	273 (39.5)
Not enough to purchase much of anything I/we really want	36 (20.7)	37 (22.7)	42 (23.2)	31 (17.9)	146 (21.1)
Intention to participate					
Definitely yes	9 (3.4)	9 (5.5)	5 (2.8)	4 (2.3)	24 (3.5)
Probably yes	23 (13.2)	24 (14.6)	27 (14.9)	22 (12.7)	96 (13.9)
Not sure	57 (32.8)	48 (29.3)	55 (30.4)	61 (35.3)	221 (31.9)
Probably not	59 (33.9)	56 (34.1)	65 (35.9)	61 (35.3)	241 (34.8)
Definitely not	29 (16.7)	27 (16.5)	29 (16.0)	25 (14.5)	110 (15.9)
	<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>M</i> (<i>SD</i>)
HBM Benefits and Costs Questionnaire					
Benefits sub-scale	23.01 (5.99)	24.10 (4.89)	22.31 (6.29)	23.17 (5.57)	23.12 (5.75)
Costs sub-scale	9.08 (4.59)	9.95 (4.26)	9.89 (4.35)	9.45 (4.34)	9.59 (4.39)

Note. *N* vary due to missing data

Redmond, 1995; Spoth et al., 2000; Thornton & Calam, 2011) and it has been estimated that HBM factors explain up to a third of the variance in intention to participate (Thornton & Calam, 2011). Thus, this study aimed to test the effectiveness of engagement strategies based on the constructs of HBM on the initial engagement of parents of young children to parenting interventions. We focused on the message communicated in the engagement strategy and the format used as a channel to communicate that message (Schiffman et al., 2014). In terms of message, we focused on those messages with more evidence, particularly Benefits and Costs from the HBM (Salari & Filus, 2017; Spoth & Redmond, 1995; Spoth et al., 2000; Thornton & Calam, 2011). In terms of formats, written and spoken formats have been previously used (Barnett et al., 2019; Morawska, Nitschke, et al., 2011; Salari & Backman 2016; Winslow et al., 2017; Winslow et al., 2016). We compared a written format (written), to an audio-visual spoken format (video). These formats are commonly used in current practice of engaging parents in parenting interventions in a wide range of settings, such as schools, community, and the media (Reidy et al., 2012). Given that the focus of this study was to test engagement strategies, it is noteworthy to mention that parents were offered a self-directed parenting intervention. In this way, the focus remained on their initial engagement rather than the effect of the intervention itself. Furthermore, the self-directed format has shown to be as effective as practitioner-led formats (O'Brien & Daley, 2011), which are usually offered to parents.

This study tested the effectiveness of message content and format of engagement strategies used in the recruitment, enrolment, and first attendance of parents for parenting interventions. Based on previous studies (Salari & Filus, 2017; Spoth & Redmond, 1995; Spoth et al., 2000; Thornton & Calam, 2011), we hypothesised that a message based on the HBM emphasizing benefits of participating in parenting intervention would result in higher recruitment, enrolment, and first attendance rates than a message highlighting overcoming costs. In terms of format, an engagement strategy using the video format would result in higher recruitment, enrolment, and first attendance rates than an engagement strategy using the written format (Winslow et al., 2017).

Methods

Design

A between-subjects 2 (message) x 2 (format) design was used. The independent variables were the engagement strategies, which consisted of a combination of message and format: (1) Benefits-Video, (2) Benefits-Written, (3)

Costs-Video, and (4) Costs-Written. Initial parental engagement (recruitment, enrolment, and first attendance rate) was the dependent variable.

Participants

A total of 692 parents participated. Most of the parents were biological or adoptive mothers (90.3%), followed by biological or adoptive fathers (8.4%). Parents' mean age was 38.35 years ($SD=6.13$). Parents had between one and five children ($M=2.07$, $SD=0.88$) aged 2 to 12 ($M=6.43$, $SD=3.20$) with equal numbers of boys (50%) and girls (50%). Parents lived mainly in an original family (83.5%), followed by a sole parent family (8.7%) and step family (5.9%). In terms of ethnicity, 81.2% identified themselves as Australians, followed by 5.8% as Asian and 5.5% as European. Table 1 shows other characteristics of the sample.

Inclusion and Exclusion Criteria

Parents were eligible to participate if they had a 2-12-year-old child. Parents needed to possess basic computer skills to participate in the study. Parents were excluded if they were not able to read in English without assistance.

Recruitment

Parents were recruited mainly through childcare centres, schools, parent organisations (i.e., Australian Council of State School Organisations, Australian Parents Council, and Isolated Children's Parents' Association of Australia), a university newsletter, and via social media (i.e., Facebook groups). The advertisement materials invited parents to participate in research "*interested to know about your views on parenting and the services that are available to you as a parent*". Recruitment took place between September 2018 and November 2019. Parents were not offered any incentives for their participation. Most of the parents heard about the study through their child's childcare or school (84.4%), followed by the Experiences of Parenting Facebook page (9.7%), and email (2.5%).

Procedure

The trial was prospectively registered (ACTRN12618001282279), and no changes were made to the registered trial. Ethical approval was obtained from the University of Queensland Behavioural and Social Sciences Ethical Review Committee (2018001181), including permissions to apply active concealment and limited disclosure, as parents were not informed upfront about the aims of the study (i.e., experimental test of engagement strategies)

to reduce bias and methodological limitations presented in previous studies (Gonzalez et al., 2018). In order to advertise this study through schools in some states/territories in Australia, further ethical clearance was sought and granted by the Departments of Education of New South Wales (SERAP 2018874), Victoria (2018_003883), Northern Territory (14409), South Australia (2018-0095), and Tasmania (2018-73). Figure 1 shows the flowchart of the procedure of this study. Parents took 23 min on average to complete the online survey. Regarding recruitment, parents were presented the message: “To thank you for your participation in this research, we offer you the opportunity to participate, free of cost, in an evidence-based parenting program similar to the one mentioned in the [video/written]”, and then were asked whether they intended to participate in the intervention, followed by the enrolment question. If parents answered ‘Yes’, they were asked to provide contact details to receive the parenting intervention by mail. Parents who provided their details, received a letter and the Self-Directed Triple P workbook. Parents only received detailed information about the intervention and its format when they received the program package in the mail. The letter informed them that they would be contacted by the research team within a month to follow up on the reception of the package. At the follow-up, parents were asked about their progress in the workbook. First attendance interviews were conducted between October 2018 and December 2019 by online survey or phone call depending on parents’ preference, with an average duration of 10 min for both. If parents answered ‘No’ to recruitment, enrolment, and first-attendance questions, they were asked to complete the *Reasons for not Participating* questionnaire.

Randomisation

Parents were randomly allocated to one of the four experimental conditions (1:1) using the Randomiser setting in Qualtrics. Although the randomisation was even, condition groups were not equally distributed as the randomisation happened after consent and before completing measures.

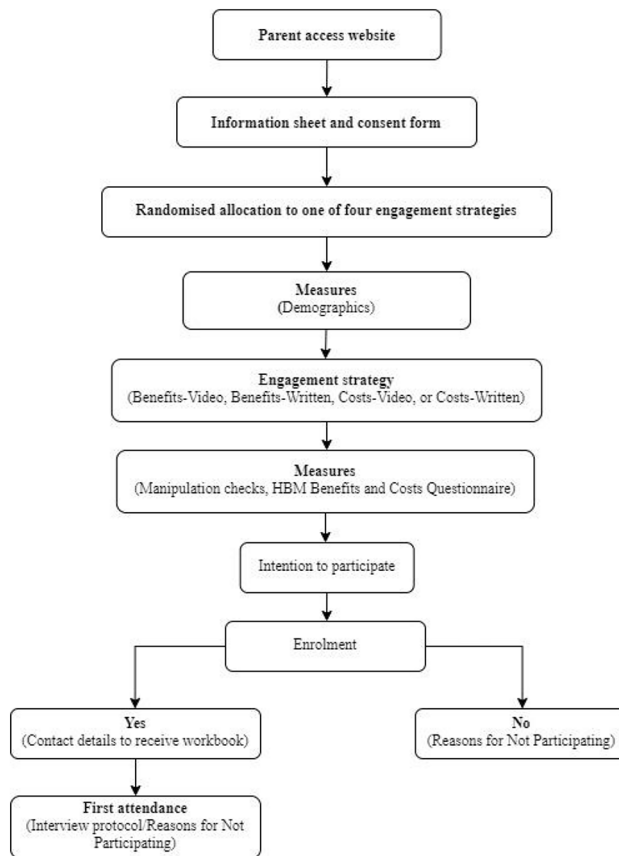


Fig. 1 Flowchart of the Procedure of the Experiment

Both participants and researchers were blind to condition allocation.

Experimental Conditions

The messages were developed based on the precepts from the HBM (Rosenstock et al., 1988) and previous research (Salari & Filus, 2017; Thornton & Calam, 2011). We developed scripts that were reviewed by other researchers in parenting and family studies who were parents themselves and provided recommendations. For the filming, the source of these messages was a parent. For the purposes of this

Table 2 Messages of Engagement Strategies

Introductory Text Target, Action, Context, and Time	Message “I have two children, my son is 9 and my daughter is 5. Generally, they’re mostly well behaved, but like any parent, we have a few day-to-day issues and that’s why I decided to take part in a program that’s designed for parents like me.” (45 words)
Construct	Message
Benefits	“I learned to be more positive as a parent, and I’ve tried out new ways to make our daily routines easier and hassle free. I talk to my children in a more positive way, and when difficulties do arise, I know how to tackle them. I’m a happier as a parent, my children are happier, so all of us win.” (60 words)
Costs	“I almost didn’t do it. There were so many things getting in the way of doing it and just trying to find the time and the energy was hard. But I’m really glad that I set aside the time and I managed to have someone look after the kids. It wasn’t always easy, but I’m glad that I finished it.” (60 words)

research, a mother who had previously participated in a parenting intervention delivered the testimonials. She also reviewed the scripts and made adjustments to ease readability and expressive language. In terms of the format of the conditions, an image of the mother from the audio-visual material was used for the written format. In order to reduce differences of both formats, once filming was completed (length was approximately 35 s), transcripts of the filming were used for the written format (105 words). Given that there is some evidence suggesting that program format and features may influence parents' decision to take part in a program (Gonzalez et al., 2021b), the message of each condition avoided any content related to these aspects. Table 2 summarises the final content for each of the messages.

Intervention

Parents who enrolled in the intervention were offered the opportunity to participate in a self-directed parenting intervention, Self-Directed Triple P. This intervention has shown to be effective in modifying ineffective parenting practices and child behavioural issues (O'Brien & Daley, 2011; Sanders et al., 2007). It also has proven effectiveness comparable to other delivery formats, e.g., practitioner-led (Sanders et al., 2007) and online parenting interventions (Sanders et al., 2014). Self-administered interventions have also received positive feedback from parents (Metzler et al., 2012).

Measures

Demographics

The *Family Background Questionnaire* (Morawska & Sanders, 2010) collects information about family demographic characteristics, such as parent demographics, child gender and age, and family composition.

Initial Parental Engagement

Initial parental engagement was measured through recruitment, enrolment, and first attendance. For *recruitment*, parents who saw the testimonial and correctly answered at least two out of three manipulation checks were considered as recruited. Additionally, parents answered the *intention to participate* question 'I intend to participate in this parenting program during the next six months', scored on a 5-point Likert scale ranging from 'Definitely no' to 'Definitely yes', and including the middle option 'Not Sure'. For the statistical analyses, 'Definitely yes' and 'Probably yes' were coded as 'Yes', while 'Not sure', 'Probably not', and 'Definitely not' were coded as 'No'. Regarding *enrolment*, parents were asked 'Would you like to enrol in this parenting program

now?' (Yes/No). Parents who indicated 'Yes' at this stage were considered as enrolled (measure of *enrolment*). To measure *first attendance*, parents were asked questions in an interview to determine if they had completed (Yes/No) the first steps in the program (Week 1), i.e., reviewing the workbook, reaching page 28, and using the behaviour monitoring strategy. Those parents who select No in the *enrolment* and/or *first attendance* were asked to complete the *Reasons for not Participating* scale (Morawska et al., 2011).

Manipulation Checks

Items focused on the content and format of the manipulation. Parents were asked 'Did you see a testimonial about participating in a program for parents?'. Then, parents were asked to identify the source of information (parent, professional, child, or other), and to indicate what was communicated in the message. Parents were also asked if they were exposed to a written, video, or other type of testimonial.

HBM Benefits and Costs Questionnaire

An adaptation of the measures used in previous studies was included for the sub-scales of Benefits (Salari & Filus, 2017) and Costs (Haslam et al., 2015; Salari & Filus, 2017). Each Benefits item describes a possible advantage of taking part in a parenting intervention, e.g., 'I will become better at teaching my child skills such as sharing and taking responsibility', 'I will have more tools to use while parenting'. Each Costs item refers to a perceived obstacle acting as a barrier to participate in an intervention, e.g., 'There is no time left at the end of the day to do the parenting program', 'My work prevents me from having time to attend a parenting program'. For both sub-scales, each item was scored on a 4-point Likert scale ranging from 'Completely disagree' to 'Completely agree'. Total score for the Benefits sub-scale (11 items) ranged from 0 to 33, with higher scores indicating higher perception of benefits. The total score of Costs sub-scale (8 items) ranged from 0 to 24, with higher scores representing higher perception of costs. The internal consistency was $\alpha = 0.95$ for Benefits and $\alpha = 0.81$ for Costs.

Sample Size

Using GPower 3.1 (Faul et al., 2007), a sample of 88 participants was required to test the primary outcome of initial parental engagement (recruitment, enrolment, and first attendance rate), with a medium effect size (0.30), $\alpha = 0.05$ and $\text{power} = 0.80$. Given that the experiment involved measurement of recruitment, enrolment, and first attendance, patterns of attrition between recruitment and access to the parenting intervention from previous studies

were considered, (e.g., 81.9% (Winslow et al., 2017) and 85% (Morawska, Nitschke, et al., 2011)). Thus, considering expected maximum attrition of 85%, 163 participants were required for the initial stage of recruitment.

Statistical Analysis

Data were entered and analysed with IBM SPSS Version 25. Chi-square analyses (5-point Likert scales were coded as a dichotomised variable) were used to detect group differences between experimental groups and initial parental engagement measures (recruitment, enrolment, and first attendance). When significant differences were reported, post-hoc analyses for chi-square included calculations of adjusted z values and adjusted p -values, following procedures suggested by Beasley & Schumacker (1995) and García-Pérez & Núñez-Antón (2003). Effect sizes following Cohen's w for chi-square are as follows: $w = 0.1$ (small); $w = 0.3$ (medium); and $w = 0.5$ (large effect). One-way ANOVA was used to compare conditions in relation to the HBM Benefits and Costs questionnaire, using Tukey tests for post hoc analyses. Logistic regression models were used to estimate the predictive impact of the independent variables (across all four engagement strategies as well as by message and format) on the dependent variables (initial parental engagement measures).

Results

Manipulation Checks

A total of 1,606 parents started the survey but 1,015 saw the testimonial and started the manipulation check questions. Of these, 78.6% indicated that they had seen a testimonial, while 9.7% stated that they did not see one and a further 11.7% could not recall it. Of those 798 parents who recalled seeing a testimonial, 98.7% ($n = 786$) correctly identified the source of the testimonial (a parent) and 91% ($n = 726$) wrote some ideas about the message communicated in the testimonial. In terms of the format of the testimonial, 100% ($n = 386$) and 97.8% ($n = 403$) correctly identified the written and video formats, respectively. The sample of parents who passed (i.e., saw the testimonial and correctly answered at least two out of three manipulation checks) was 793. The adaptation of the CONSORT flow diagram (Moher et al., 2010) for this study is presented in Fig. 2.

The four conditions were also compared against their total scores on the HBM Benefits and Costs sub-scales using one-way between-groups analysis of variance (ANOVA). There were significant differences between the four groups for the Benefits sub-scale, $F(3, 717) = 2.75, p = .042$; while

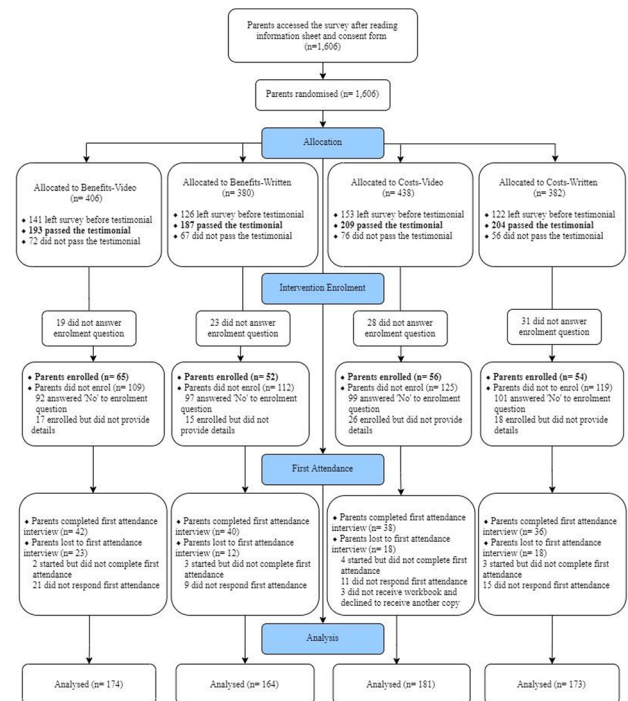


Fig. 2 CONSORT Flow Diagram

no significant differences were identified for the Costs sub-scale, $F(3, 715) = 1.45, p = .227$. Post hoc analyses indicated that Written-Benefits ($M = 24.10, SD = 4.89$) showed significantly higher Benefits scores compared to Video-Costs ($M = 22.31, SD = 6.29$); the other groups showed no significant differences.

Missing Values

The missingness of the data in the sample of 793 was explored. Little's Missing Completely at Random (MCAR) test was not significant, indicating that the data were MCAR, $\chi^2(4723) = 4466.78, p = .996$. Mean percentage of missing values was 3.1% (ranging from 0 to 12.7%). There were 101 cases that did not respond to the enrolment question. These cases did not respond to any further questions and did not differ significantly across the four conditions, $\chi^2(3, N = 101) = 3.36, p = .340, w = 0.2$, nor message, $\chi^2(1, N = 101) = 2.86, p = .091, w = 0.2$, or format, $\chi^2(1, N = 101) = 0.49, p = .486, w = 0.1$. Given that enrolment was one of the dependent variables, these cases were removed and the final sample size for analysis was 692.

Experimental Conditions

As a measure of recruitment, parents who remained in the survey after testimonials were included in the analysis. There were no significant differences between parents who

passed the manipulation checks across the four conditions, $\chi^2(3, N=692)=0.84, p=.839, w=0.03$, and when comparing message (i.e., Benefits vs. Costs), $\chi^2(1, N=692)=0.37, p=.543, w=0.02$, and format (i.e., Video vs. Written), $\chi^2(1, N=692)=0.47, p=.494, w=0.03$.

In terms of intention to participate, when comparing parents who displayed no clear intention (definitely not/probably not/ not sure) to participate in a parenting program to those who definitely yes/probably yes intended to participate, there were no significant differences across the four conditions, $\chi^2(3, N=692)=1.60, p=.659, w=0.1$, message, $\chi^2(1, N=692)=0.46, p=.496, w=0.03$, or format, $\chi^2(1, N=692)=0.01, p=.910, w=0.004$.

Regarding enrolment, a minority of parents ($n=303, 43.8\%$) indicated that they would like to enrol in a parenting intervention. Across conditions, the enrolment rates ranged from 26.47% (Costs-Written) to 33.68% (Benefits-Video), for parents who passed the testimonial checks and responded that they would like to enrol. There were no significant differences across conditions in terms of parents' response to the enrolment question, $\chi^2(3, N=692)=1.86, p=.602, w=0.1$; neither for message, $\chi^2(1, N=692)=0.024, p=.878, w=0.01$, nor format, $\chi^2(1,$

$N=692)=1.72, p=.189, w=0.1$. Similarly, parents who answered 'No' did not differ across experimental conditions, $\chi^2(3, N=389)=0.46, p=.928, w=0.03$; or when compared by type of message, $\chi^2(1, N=389)=0.31, p=.577, w=0.03$, or format, $\chi^2(1, N=389)=0.13, p=.723, w=0.02$. In terms of parents who answered 'Yes', they showed no significant differences across conditions, $\chi^2(3, N=303)=2.23, p=.527, w=0.1$; or when compared by type of message, $\chi^2(1, N=303)=0.08, p=.774, w=0.02$, or format, $\chi^2(1, N=303)=2.06, p=.151, w=0.1$. Furthermore, only 32.8% ($n=227$) of parents enrolled (i.e., answered 'Yes' and provided all details to successfully enrol). When further exploring this enrolled group, there were no significant differences by condition, $\chi^2(3, N=227)=1.74, p=.628, w=.1$; message, $\chi^2(1, N=227)=0.22, p=.642, w=.03$, or format, $\chi^2(1, N=227)=0.99, p=.319, w=.1$.

Of the 227 parents who completed the enrolment form, 224 received the workbook while three parents did not receive the workbook and then declined to receive another copy. However, only 30 completed all actions required for Week 1 as part of first attendance. Due to this small sample size, exploratory analyses were conducted. Parents who completed all actions of first attendance showed no significant differences by condition, $\chi^2(3, N=30)=1.20, p=.753, w=0.2$; message, $\chi^2(1, N=30)=0.53, p=.465, w=0.13$, or format, $\chi^2(1, N=30)=0.13, p=.715, w=0.1$. Given that Week 1 involves some activities beyond reviewing the content, further analyses were conducted considering parents who did two out of the three actions required and those who did not. However, there were no significant differences for experimental condition, $\chi^2(3, N=168)=3.32, p=.345, w=0.14$, message, $\chi^2(1, N=168)=2.21, p=.137, w=0.12$, or format, $\chi^2(1, N=168)=0.001, p=.977, w=0.002$. When comparing parents who reviewed the workbook to those who did not, there were significant differences when comparing the four conditions, $\chi^2(3, N=168)=8.36, p=.039, w=0.22$, and message, $\chi^2(1, N=168)=5.70, p=.017, w=0.18$. However, format groups did not differ significantly, $\chi^2(1, N=168)=0.94, p=.332, w=0.08$. Post hoc analyses showed that parents in the Video-Benefits condition were significantly less likely to review the workbook when compared to other conditions. When further examining message conditions, parents who saw the Benefits message were significantly less likely to review the workbook, and parents who saw the Costs message were significantly more likely to review the workbook.

Further analyses were conducted for intention to participate, enrolment, and first attendance using logistic regression. Intention to participate was not predicted by condition, message or format, $\chi^2(df=3, N=692)=1.590, p=.662$; nor was enrolment, $\chi^2(df=3, N=692)=1.862, p=.602$. While experimental condition, message or format did not predict

Table 3 Reasons for Not Participating for Enrolment and First Attendance

Reasons for Not Participating	Parents did not enrol ($n=389$)	Parents did not complete first attendance interview ($n=156$)
I don't have enough time	253	107
I don't feel that I need the parenting program	249	13
I have competing work commitments	205	70
I was feeling too tired to do it during my free time	125	61
I cannot get child care	114	8
I think the parenting program was not interesting or not relevant for me	103	4
Other	78	56
I think the parenting program is too much work for me to do	66	22
I feel uncomfortable participating in a parenting program	61	3
I think it's difficult to do the parenting program on my own	58	17
I perceived that my extended family or partner would not be supportive of me participating in the program	49	15
I take part in a different parenting program	24	6
I think the parenting program is culturally inappropriate	11	0

Note. N vary due to parents being able to select more than one reason

if parents completed two out of three actions for first attendance, χ^2 ($df=3$, $N=168$) = 3.354, $p = .340$; there were significant predictors when examining parents who reviewed the workbook. The logistic regression for experimental condition was significant, χ^2 ($df=3$, $N=168$) = 8.391, $p = .039$; showing that parents in the Video-Costs condition and the Written-Costs condition were 3.18 (95% C.I odds ratio, 1.31 to 7.68) and 2.84 (95% C.I odds ratio, 1.16 to 6.92) times more likely to review the workbook, respectively; compared to the other two conditions. Similarly, the logistic regression for message was significant, χ^2 ($df=1$, $N=168$) = 5.744, $p = .017$, indicating that parents in the Costs conditions were 2.12 time more likely to review the workbook (95% C.I odds ratio, 1.14 to 3.96) compared to Benefits conditions. However, the logistic regression for format was not significant, χ^2 ($df=1$, $N=168$) = 0.942, $p = .332$. Table 3 shows parents' reasons for not enrolling and for not completing first attendance. Overall, parents reported that their most frequent reason for not enrolling and not completing the first attendance was not having enough time. Parents not enrolling also mentioned that they did not feel the need for the program and they faced work commitments. Parents who did not complete the first week of the workbook added work commitments and fatigue as their reasons.

Discussion

The study aimed to test the impact of message content (i.e., benefits vs. costs) and format (i.e., video vs. written) of engagement strategies on the initial engagement of parents with parenting interventions. Overall, the type of message and format tested did not have a significant effect on parents' initial engagement, i.e., recruitment, enrolment, and first attendance.

When comparing messages focused on the benefits of taking part in an intervention to those about overcoming the barriers to do so, findings showed no significant differences across recruitment and enrolment. Similarly, type of message did not have an impact on parent's intention to participate in a future intervention. These findings did not support our hypothesis and previous studies (Salari & Filus, 2017; Spoth et al., 2000; Thornton & Calam, 2011). Although parents who saw the testimonials emphasising benefits increased their perception of the perceived benefit of parenting interventions right after seeing the testimonial, this did not translate into higher likelihood of intending to participate and enrolling in the intervention. These findings may show that perceived benefits are having an immediate effect rather than lasting long enough to translate into changes in parents' behaviour. It may also be the case that the strategy itself failed to enhance their perception of the benefits and

costs of the intervention based on the message they were randomly allocated to. The costs message mentioned several barriers and ended by emphasising “*but I'm glad that I finished it*”, thus it may have implied that it was beneficial to overcome those barriers and complete the intervention. Communicating to parents the potential costs on their parenting and their children if they do not participate in an intervention may be better than overcoming barriers (Tuong et al., 2014).

Contrary to our hypothesis and previous studies (Winslow et al., 2017), engagement strategies using a video were not more engaging than those using a written format during recruitment and enrolment. In line with these results, parents' intention to participate was not affected by the format of the message that they were exposed to; that is different formats did not affect initial engagement. As both formats included a simplified message, it may be the case that as long as the format communicates the message, parents will get the message. However, enhancing active involvement of parents requires further attention to other elements of such strategies. It is also possible that format may not be as relevant for initial engagement but rather for later engagement given that videos have been effective mediums to promote healthy behaviours (Tuong et al., 2014).

Regarding first attendance, there were mixed results. Our hypothesis was not confirmed, as parents did not differ in terms of completing all or the majority of the tasks for the first section of the program. However, parents who were exposed to the message emphasising overcoming costs were significantly more likely to review the first week's material compared to those parents who saw messages about the benefits of taking part in an intervention. Given that the first week involves activities that parents need to complete in their own time beyond the reading of the workbook content, it may be possible that the testimony of a parent who was able to overcome daily barriers to implement these actions may have encouraged parents to review the content. This finding is relevant because previous research has shown that perceived barriers are commonly associated with parent's low attendance or lack of attendance at a parenting intervention (Duppung-Hurley et al., 2016; Lee et al., 2006). If an engagement strategy highlighting overcoming those barriers may translate into more chances of initiating, it may also enhance later engagement.

Both messages were presented in a positive direction, i.e., benefits for the parents and their children due to taking part in the intervention and overcoming barriers to take part in the intervention and sense of accomplishment for completion. Thus, both messages may encourage parents' initial engagement leading to no significant differences between experimental groups. However, Salari & Backman (2016) used a similar approach focusing on the benefits

and the reduction of risks for the children if parents participated in the intervention, showing greater perception of the relevance and impact of the intervention for those parents who saw the advertisement highlighting the benefits in contrast to those who saw the one about reducing risks. Thus, it may also be the case that as the engagement strategies were presenting positive messages about the intervention, i.e., through its benefits and overcoming barriers to participate, it may have changed parents' attitudes towards parenting interventions leading to comparable initial engagement. These findings would be in line with previous studies using another theory from the health-behaviour framework, i.e., Theory of Planned Behaviour, which found that positive attitudes towards the intervention showed the stronger effect on intention to take part in that intervention (Wellington et al., 2006).

The current study built upon previous experimental studies testing engagement strategies using a simplified design aimed at comparing two types of messages and two types of formats commonly used in current practice. The study had several methodological strengths due to blinding randomisation of participants and researchers, concealed allocation, blinding outcome assessment, and reporting missing outcome data; reducing the risk of bias of its results. This study also included parents' attitudes regarding parenting interventions as well as their subsequent engagement behaviours, providing a more comprehensive approach when examining parental engagement. Additionally, manipulation checks provided information regarding parents' capacity to attend to the manipulative elements of each condition. The results were drawn from a community sample of parents who undertook the survey to share their views of parenting, without knowledge of the offer of an intervention upfront and without compensation for their time.

However, this study also had several limitations. Given the inconsistent results in terms of the effect of the message content on the manipulation checks (i.e., HBM constructs) and on the completion of the first week's material, it is possible that the messages were not as persuasive as expected. For example, Winslow et al., (2017) used a wider range of persuasive messages reaching higher initial engagement. Additionally, the study only used a sole engagement strategy, while a combination of engagement strategies may be needed in real practice in order to maintain engagement over time (Winslow et al., 2017). The video formats lasted 35 s, while previous studies have used longer videos, i.e., 90 s (Barnett et al., 2019), around 2 min (Morawska, Nitschke, et al., 2011) and 11 to 14 1/2 minutes (Winslow et al., 2017). However, Zhang et al., (2017) reported that public service announcements about healthy eating based on the HBM lasted 1.47 min on average, with the majority under 2 min long. Durkin et al., (2019) found that a 30-second television

advertising led to significantly more bowel cancer screening kits returned for analysis during the advertising campaign and two months after. However, existing evidence has not evaluated if testimonial length has an impact on engagement (Winslow et al., 2017), nor whether it is practical to deliver shorter versus longer message in real-life contexts. Due to the 2×2 design of the current study, there was no control condition. Previous studies have used an informative video without a testimonial (Morawska, Nitschke, et al., 2011) and informative brochure and video (Winslow et al., 2017) as control conditions. However, it is difficult to plan a passive control condition given that engagement implies the active involvement of parents throughout the stages of an intervention. Another limitation is the sample size. Based on a priori calculations, sample size was sufficient for comparing groups for recruitment and enrolment, but not for first attendance. Parents were contacted for the first attendance interview within a month of receiving the workbook; however, extra support for parents in self-directed formats has translated into more progress and greater satisfaction with the intervention (Day & Sanders, 2018). Fewer than a half of parents who accessed the survey answered demographic questions and saw the testimonials. Due to active concealment and limited disclosure of the aims of the study, parents were invited to share their views on parenting and the services available for them. It may be that parents completed demographic questions and did not feel that this was what they thought the study was about. So, the strategy used in this study to reduce bias may have also increased parents' likelihood of leaving the survey before viewing the testimonial and completing the post-testimonial measures. However, Winslow et al., (2017) did not ask demographic questions and still reported high attrition rates between parents expressing interest and initiating the intervention. It means that the survey process itself may need further consideration. Since none of the engagement strategies in this study provided information about the characteristics of the intervention, i.e., features, format, and commitment required; parents were unable to make a fully informed decision. Given that previous research has shown the relevance of informing parents about program features and formats (Gonzalez et al., 2021b), concealing this information from parents avoided parents' deciding based on their preferences, but it may also have led to parents avoiding to agree to enrol in a parenting intervention they do not have sufficient information about. Given that parents only found out about the characteristics of the program when they received the program package, it may not have met their unspoken expectations about the kind of support received. Thus, this may have undermined their motivation to complete of the first steps in the self-directed program. However, as the engagement strategies did not have a significant effect on

recruitment and enrolment, there is no clear indication that it may be the case in this study.

Although most of the hypotheses were not supported, they do draw the attention to other types of engagement strategies. The current study focused on benefits and costs from the HBM communicated by a parent, which may also have exerted a social norm influence. However, there are other elements commonly used in health communication, such as statistics and humour (Zhang et al., 2017), that can be further explored. Although there are studies comparing parents who engaged or not across stages (Dadds et al., 2019; Winslow et al., 2017), it would be relevant to compare these groups in community samples of parents who are not service users or seeking help in order to expand existing evidence. This study focused on main effects as defined by the registered study protocol, so further secondary analyses may involve looking at potential interaction effects. As past participation has shown to play an important role in future engagement (Gonzalez et al., 2021a), it would be relevant to examine if parents' past participation influences the effect of engagement strategies on their current engagement.

The initial engagement of parents with parenting interventions is a concerning issue for practitioners and researchers when planning and implementing engagement efforts. This study questions both the channel of engagement and the message content. Therefore, it shows that current efforts of engaging parents using these strategies are not sufficiently based on evidence. This study only showed that parents who saw the testimonial addressing overcoming barriers were significantly more likely to review the program content. This adds something to the literature but it is not sufficient to inform the design and implementation of engagement strategies to enhance recruitment, enrolment, and first attendance of parents in parenting interventions. Given that engagement is a continuous multistage process, it is also relevant to expand the focus of engagement on the parents' needs and challenges, so the services available for them need to take these aspects into account for a more personalised engagement process.

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Data Availability Restrictions apply to the availability of these data. The data might be available to other researchers upon request.

Declarations

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Ethical Approval Ethical approval was obtained from the University of Queensland (UQ) Behavioural and Social Sciences Ethical Review Committee (2018001181). All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. In order to advertise this study through schools in some states/territories in Australia, further ethical clearance was sought and granted by the Departments of Education of New South Wales (SERAP 2018874), Victoria (2018_003883), Northern Territory (14409), South Australia (2018-0095), and Tasmania (2018-73).

Animal Rights No animal studies were carried out by the authors for this article.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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