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The Development, Pilot, and Process Evaluation of a Parent Mental Health Literacy Intervention Through Community Sports Clubs

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Abstract

The mental health literacy of parents may be critical in facilitating positive child and adolescent mental health outcomes. The purpose of this study was to develop, pilot, and evaluate a targeted parent mental health literacy intervention through community sports clubs. Sixty six parents (M_{age} = 44.86 ± 5.2 years) participated in either a brief mental health literacy intervention workshop delivered through community sporting clubs (n = 42) or a community-matched control group (n = 24). Participants' mental health literacy was assessed at baseline, post-intervention and at one month follow-up. A mixed methods process evaluation was conducted with intervention participants to determine the acceptability and feasibility of the intervention. Participants in the experimental group showed greater increases in depression literacy, anxiety literacy, knowledge of help seeking options and confidence to assist an adolescent experiencing a mental health disorder, compared to those in the control group. Post-intervention changes in the experimental group were maintained at one month follow-up. A mixed methods process evaluation revealed that parents found the intervention content engaging, relevant to their needs, and practically useful in terms of actively supporting adolescent mental health. Findings provide evidence that a brief, targeted intervention through community sports clubs might be a particularly useful method of improving parental mental health literacy and facilitating positive youth mental health outcomes.

Keywords: Adolescence; family; mixed-methods; well-being; youth sport.

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Introduction

Mental health disorders constitute a significant threat to the well-being of young people worldwide. Children and adolescents constitute approximately one third of the world's population (2.2 billion individuals), and mental health disorders are estimated to affect 10–20% of children and adolescents worldwide (Kieling et al., 2011). Anxiety disorders and depressive disorders are the most prevalent mental health disorders affecting children and adolescents (Polanczyk et al., 2015). Of particular concern is that over one-third of adolescents do not seek help for mental health disorders (Lawrence et al., 2015; Rickwood, Deane, Wilson, & Ciarrochi, 2005). Furthermore, adolescent males are less likely to seek help than adolescent females, despite having a higher risk of developing mental health issues (Lawrence et al., 2015; Rickwood et al., 2005), and this is thought to reflect issues such as stigma, inadequate mental health literacy, and self-reliance (Gulliver, Griffiths, & Christensen, 2010).

Research has shown that adolescents are more likely to reach out to informal (rather than formal) sources of support such as family and friends (Jorm & Wright, 2007) and are more likely to seek professional help if it is recommended and supported by these influential others (Rickwood, Deane, & Wilson, 2007). Approximately 75% of the general public who have had a friend or family member experience a mental health problem attempt to provide help (Reavley & Jorm, 2012), and therefore it is important that the public is educated on how best to respond to and assist those experiencing symptoms. In particular, parents are a primary source of support for adolescents (Jorm & Wright, 2007) and the likely first observers of mental health disorder symptoms in adolescents (Mendenhall & Frauenholtz, 2015). Therefore, parents need to be able to provide adequate support and assistance when their adolescent shows symptoms of a mental health disorder (Mason, Hart, Rosetto & Jorm, 2015). However, research suggests that the mental health literacy of parents (in terms of adolescents' mental health) is limited (Frauenholtz, Conrad-Hiebner, & Mendenhall, 2015) and parents are not adequately prepared to assist adolescents who experience a mental health disorder (Pescosolido et al., 2008).

Mental health literacy refers to knowledge, attitudes, and beliefs about mental disorders and help seeking that can facilitate symptom recognition, management, and prevention (Jorm et al., 1997; Jorm, 2012). Mental health literacy incorporates knowledge of strategies for the prevention of mental health disorders, effective self-help strategies, and professional help-seeking and treatment options (Jorm et al., 1997). It includes the capacity to recognize the development or existence of symptoms of mental health disorders and the self-

confidence to help others who may be experiencing or developing a mental health disorder. It also captures the attitudes that can facilitate or inhibit mental health promotion and help seeking (Jorm et al., 1997).

Low levels of mental health literacy in parents can have adverse consequences for adolescent mental health including missed identification and diagnosis of symptoms, delayed help seeking or non-treatment, and higher levels of stigma (Jorm, Wright, & Morgan, 2007; Mendenhall, 2012). Therefore, parents' mental health literacy is a crucial factor for early recognition and treatment of adolescent mental health problems (Jorm, 2012; Mendenhall & Frauenholtz, 2015) and should be a key target in interventions designed to improve adolescent mental health (Mendenhall & Frauenholtz, 2015; Jorm, Wright, & Morgan, 2007). Indeed, parents themselves have reported a need for greater mental health knowledge and information, particularly concerning the mental health needs of adolescents (Hurley, Swann, Allen, Okely & Vella, 2017). In this research, it was found that parents had low levels of mental health literacy and were often worried about the development of mental health disorders in their adolescents. Moreover, parents expressed their difficulty in identifying the potential symptoms of a mental health disorder and in their ability to discuss mental health with their adolescent.

Relatively few interventions have targeted parental mental health literacy, and fewer still have focused on parents of adolescents. One brief, in-person psychoeducation intervention was conducted for parents of adolescents with a mental health disorder (Gilbo et al., 2015). The intervention included a seminar with education on youth mental health and small discussion groups. Qualitative evaluation revealed that parents valued the information presented and reported increased knowledge of mental health disorders and treatments. The qualitative investigation indicated that brief (single session) interventions can benefit parents and adolescents. In another study, an educational online program for parents delivered in the workplace sought to educate parents on depression and anxiety and help seeking services (Dietz et al., 2009). It was found that parents using the website improved their mental health knowledge and confidence to handle mental health issues to a greater extent than participants in a waitlist control condition. Two further studies targeted adult gatekeepers' mental health literacy in relation to youth mental health disorders in community samples (Kelly et al., 2011; Story et al., 2016). In both studies participants improved their mental health literacy from pre- to post-intervention. Importantly, these interventions demonstrated the potential for mental health literacy interventions to be integrated within existing community structures and organizations.

Family and parent-focused mental health intervention programs are not widely available and have traditionally suffered from low participation rates (Ingoldsby, 2010). Common barriers to participation among parents include time constraints, inconvenience, ease of access to information, a fear of stigma and a lack of

perceived need (Ingoldsby, 2010). There is a need for population-wide mental health promotion and prevention programs that are accessible are less time consuming, aim to reduce stigma, and target the needs of parents. A potential avenue for mental health promotion and prevention among adolescents and parents is community sports clubs. Approximately half of all children and youth participate in organized sport worldwide with higher participation rates in developed countries, such as Australia (Tremblay et al., 2016) indicating the potential for community sport clubs to engage with young athletes and their parents. Parents are a key source of support in adolescent sport participation (Harwood & Knight, 2015) and parent behavior has been targeted in the youth sport environment as a mechanism to increase support and warmth, and reduce conflict and pressure (Dorsch, King, Dunn, Osai, & Tulane, 2017). In addition, parents often fulfil the role of team coach, manager and other volunteer positions in community sports clubs, thereby potentially extending the reach of mental health promotion and intervention in this environment.

The potential benefits of youth sport participation for mental health are well documented (Eime et al., 2013) but few sport organizations engage in mental health initiatives (Liddle, Deane, & Vella, 2016). However, a previous study has shown that the mental health literacy of adult leaders in youth sport, such as coaches and parents, can be improved (Bapat, Jorm, & Lawrence, 2009). By aligning mental health promotion with physical health promotion, through the medium of a community sport club, it might become easier to facilitate conversation around mental health, reduce stigma, and positively influence mental health knowledge and attitudes (Anwar-McHenry, Donovan, Jalleh, & Laws, 2012). Indeed, this method of mental health promotion in sport has been supported by the views of sport parents (Hurley et al., 2017).

The purpose of this study was to develop and pilot a brief mental health literacy intervention for parents of adolescent males through community sport clubs. Considering the importance of parent mental health literacy in the prevention and treatment of adolescent mental health disorders, it is surprising that so few interventions have been developed. Interventions are clearly warranted, but are unlikely to be effective in the absence of an evidence base to inform the design and delivery of large-scale intervention. Mental health literacy interventions need to comprehensively capture all the components of mental health literacy, explore different avenues for engaging with parents in the community, and be tailored to the particular group and context they are targeting to have maximum impact (Kutcher, Wei, & Coniglio, 2016). For example, while targeting the broader components of mental health literacy in parents, attention should also be paid to the unique parent-adolescent relationship. Therefore, the purpose of this study was to: (a) develop a targeted mental health literacy intervention for parents of adolescents through community sport clubs, (b) pilot the intervention in a small

sample of parents, and (c) evaluate the feasibility, acceptability, and effectiveness of a brief intervention in the community sport club environment. Findings from this study will also be used to inform program implementation as part of a larger project on the promotion of positive adolescent mental health through community sport clubs.

Method

Participants

Parents were recruited from sport clubs in two matched communities in Australia. Neighborhood socio-economic position was determined according to the Socio-Economic Indexes for Areas Index of Relative Socio-Economic Disadvantage [SEIFA] (Australian Bureau of Statistics, 2008) using parents' home postcodes. Nationwide, SEIFA scores are calculated to have a mean of 1000 and *SD* of 100. Participants in the current study ranged from 1097.9 (95^{th} percentile) – 940.7 (27^{th} percentile) with a mean of 1018.6 (*SD* = 50; 80^{th} percentile). In total, 66 parents (M_{age} = 44.86 ± 5.2 years), comprised of 51 mothers (77%) and 17 fathers, agreed to participate in the study. In the intervention group, 44 parents (34 women, 10 men) participated in one of five workshops respectively. Participant numbers in each workshop ranged from three to 17. The control group was made up of 24 parents (17 women, 7 men) from a matched community. Multiple recruitment strategies were used, including advertisements (with permission) on sport clubs' social media and website pages and on a regional sporting body's website. The lead researcher also visited youth sport clubs on training and match days to increase visibility, develop trust, and facilitate recruitment. Interested parents provided their contact details to receive further information about the study (via phone or email).

Procedure

Intervention development. The design, content, and delivery of the intervention was informed by recent qualitative work that has explored parental perceptions of mental health literacy interventions and their potential use in youth sport settings (Hurley et al., 2017). Parents stressed the dual needs of: (a) making parents aware of the importance of their role in supporting adolescent mental health outcomes, and (b) of providing clear, basic, brief information on mental health and the actions parents can take (Hurley et al., 2017). Parents also wanted choice in how they accessed material, wanted information to be provided where parents are for ease of accessibility, and commented on the supportive environment and parent social networks within community sport clubs. Building on those findings, a brief (approximately 1 hour) in-person workshop, supplemented by print and online content, was chosen as the method of delivery to meet parents' expressed needs, facilitate shared learning and discussion, and reduce stigma and other barriers to participation.

The pilot intervention content was designed by the authors: (a) to raise awareness of parents' role in promoting and supporting positive adolescent mental health, and (b) to increase parental mental health literacy. Intervention content was guided by the mental health literacy framework (Jorm et al., 1997) and was designed to be engaging through a mix of parent reflection, discussion, presentation, and brief videos (see Table 1). Materials were developed and adapted from Mental Health First Aid guidelines (Fischer, Kelly, Kitchener, & Jorm, 2013; Morgan & Jorm, 2009), or used with permission from mental health organizations and parenting organizations (e.g., ReachOut, Raising Children Network). The content of the intervention workshop was assessed for relevance and accuracy by a Mental Health First Aid trainer. Feedback was incorporated into the final workshop, for example, putting more emphasis on how to tell the difference between regular teenage behavior and the signs of a possible mental health disorder. The information presented was set at an introductory level with supplementary online material offered via the intervention project website.

Design. This pilot study utilized a matched control design. A control group, who received no intervention, consisted of parents drawn from sport clubs that were matched to the intervention clubs at a community level. The control region was selected based on population size, number of adolescent male sport participants, socioeconomic position, and sport culture, relative to the intervention region. Figure 1 illustrates the design of the intervention and number of participants in both conditions across time points.

Ethical approval was gained from an institutional ethics committee. Workshops took place at local sport clubs (n = 2) or at a university campus (n = 3). All participants provided informed consent prior to taking part. The duration of the workshops varied from 55 – 80 minutes (mean = 65 minutes) depending on parent engagement and discussion. Parents in the intervention group completed all measures at baseline, post-workshop, and one month follow up. Parents in the control group completed measures at baseline and follow-up. Workshops were led by the lead author who had mental health first aid certification and experience in delivering mental health workshops. Following the workshop, parents received a pamphlet containing key information from the workshop and were also directed to online resources should they require or want more information.

All parents who attended the workshops (n = 44) completed feedback measures, rating nine statements (e.g., "Overall, how easy was the content of the workshop to understand?") from 1 (*not at all*) to 4 (*very*). There was also open-ended space for parents to express what they liked, did not like, or would change about the workshop and parents were encouraged to be honest in their responses. In addition, all intervention group parents were invited to participate in follow-up interviews to provide more in-depth feedback on the workshop, as well as their motivations to attend and suggestions for intervention refinement. In total, four parents in the

intervention group agreed to take part. One in-person focus group was conducted with three mothers (lasting for 40 minutes) and one father took part in a telephone interview (lasting 35 minutes). A semi-structured interview guide was developed to investigate parents' reasons for attending the workshop, their perceptions of the workshop content and delivery, and suggestions for further refinement of intervention content, delivery, and recruitment strategies. Interview and focus group data were recorded and transcribed by the lead researcher.

Measures

Anxiety literacy and depression literacy. The Anxiety Literacy questionnaire (A-LIT; Gulliver et al., 2012) and the Depression Literacy questionnaire (D-LIT; Griffiths et al., 2004) contain 22 statements measuring disorder specific knowledge and attitudes. In both questionnaires nine statements that did not correspond to intervention aims and content were excluded. Participants responded to 13 statements about depression and anxiety with response categories of 1 (*true*), 2 (*false*), or 3 (*don't know*). An example statement is: "People with depression/anxiety often speak in a rambling or disjointed way". One point is given for a correct response. Higher scores are indicative of better anxiety or depression literacy. Both the A-LIT and D-LIT have demonstrated adequate construct validity and test-retest reliability in adult samples (Gulliver et al., 2012).

Mental health literacy. Mental health literacy was assessed using an adapted 18-item version of the Mental Health Literacy scale (O'Connor & Casey, 2015) which examines knowledge of, and attitude toward, mental health and help seeking. The scale is comprised of three subscales: knowledge of help-seeking options (4 items), attitudes that promote recognition or appropriate help-seeking behavior (9 items) and stigmatizing attitudes (5 items). Items are rated on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The scale is appropriate to identify those with low levels of mental health literacy as well as changes in mental health literacy resulting from an intervention program. The Mental Health Literacy scale has been found to have adequate test-retest reliability and construct validity in adult samples (O'Connor & Casey, 2015).

Parent psychological distress. The Kessler-6 (K6; Kessler et al., 2002) is a six-item short screening measure of psychological distress. Participants are asked to rate how often they have felt, for example, "restless or fidgety" in the past 30 days from 1 (*none of the time*) to 5 (*all of the time*). The K6 has excellent internal consistency and test-retest reliability and is suitable for use with different demographic adult samples (Kessler et al., 2002).

Parental confidence to provide help. Participants also completed a single item measure of their confidence to help someone experiencing a mental health problem, from 1 (*not at all confident*) to 5 (*extremely*

confident): If you had contact with someone who appeared to be experiencing a mental health problem, how confident would you feel in helping them.

Data Analyses

One-way repeated measures analyses of variance (ANOVA) were conducted to explore change in intervention group scores on all outcome measures at Time 1 (baseline), Time 2 (post-intervention) and Time 3 (one-month follow-up)**.** One-way analyses of covariance (ANCOVA) were then conducted to compare scores on all outcome measures between the intervention group and the matched control group at one month follow-up. Pre-intervention scores on all outcome measures were included as covariates. The independent variable was experimental or control group and the dependent variables were all psychological measure scores at one month follow-up. Descriptive statistics were computed for participant feedback measures.

The interview, focus group and open-ended response data were analyzed inductively using thematic analysis (Braun & Clarke, 2006). For open-ended written responses, individual participant comments were coded, numbered and grouped together into feedback categories. For interview and focus group data, the lead researcher first engaged in the process of *indwelling* (Maykut & Morehouse, 1994), becoming immersed in the data through multiple readings of the transcripts. Initial codes were then developed to ascribe basic meaning to the data. Similar codes were grouped together where appropriate to form explanatory themes.

Guided by a subjective relativist position (Sparkes & Smith, 2014), methodological rigor was enhanced through the use of member reflections, peer debrief and rich description. First, member reflections of focus group and interview participants were used to generate additional dialogue on parents' individual experiences and interpretations of the intervention. The purpose of this process was not to verify results or reach consensus but rather to facilitate more robust and enriched understanding through the exploration of multiple and alternative perspectives (Smith & McGannon, 2017). Second, peer debrief (Creswell & Miller, 2000) was conducted with other members of the research team. Through this continual process of formal and informal discussion, colleagues acted as "critical friends", engaging in a constructive dialogue by providing support for or challenging the lead researcher's assumptions and interpretations. Finally, a rich description of participants and the community sport club environment enables the reader to judge for themselves about the appropriateness of transfer or generalizability of findings, as suggested by Sparkes and Smith (2014).

Results

Of the 66 parents included in the study, 42 in the intervention group completed study measures at baseline (Time 1) and post-intervention (Time 2) with 31 (74%) returning to complete measures at one month

follow-up (Time 3). In the control group, 24 parents completed measures at baseline and follow-up. There were no significant differences between the intervention and control group on any outcome variable at baseline ($p >$ .05).

Pilot Intervention

For the intervention group, means and standard deviations for all outcome measures at Time 1 (baseline), Time 2 (post-intervention) and Time 3 (follow-up) are presented in Table 2. There was a significant effect for Time on parents' confidence, $F(2, 29) = 17.55$, $p < .05$, $\eta_p^2 = .55$, depression literacy, $F(2, 28) = 7.79$, $p < .05$, $\eta_p^2 = .36$, anxiety literacy, $F(2, 28) = 5.70$, $p < .05$, $\eta_p^2 = .24$, overall mental health literacy, $F(2, 28) = 12.06$, $p < .001$, $\eta_p^2 = .46$, knowledge of help seeking options, $F(2, 29) = 19.24$, $p < .05$, $\eta_p^2 = .57$, and attitudes that promote recognition or appropriate help-seeking behavior, $F(2, 29) = 5.37$, $p < .05$, $\eta_p^2 = .27$. Post hoc pair-wise comparisons using Bonferroni adjustments revealed that scores on all outcome measures, except for mental health attitudes, increased from baseline to post-intervention and from baseline to follow up, with scores maintained from post-intervention to follow up (see Table 2).

Adjusted means and standard errors for all outcome measures (at follow-up) for intervention and control groups are presented in Table 3. After adjusting for baseline scores, there were significant differences between the groups on depression literacy, $F(1, 52) = 20.63$, $p < .001$, $\eta_p^2 = .28$, anxiety literacy, $F(1, 50) = 15.60$, $p < .001$, $\eta_p^2 = .24$, mental health literacy knowledge, $F(1, 52) = 6.68$, $p = .050$, $\eta_p^2 = .11$, and parental confidence, $F(1, 52) = 14.43$, $p < .001$, $\eta_p^2 = .22$. Participants in the experimental group increased their scores on each of these measures to a greater extent than those in the matched control. There were no significant differences between groups on overall mental health literacy, $F(1, 51) = 1.432$, $p = .237$,$\eta_p^2 = .027$, mental health stigmatizing attitudes, $F(1, 52) = .600$, $p = .442$, $\eta_p^2 = .011$, attitudes that promote recognition or help-seeking, $F(1, 51) = .000$, $p = .982$, $\eta_p^2 = .000$, or psychological distress $F(1, 52) = .490$, $p = .487$, $\eta_p^2 = .009$ after controlling for baseline scores.

Process Evaluation

Table 4 shows that participants responded favorably to intervention content and delivery with an overall mean score of 3.7 of a possible 4.0. Parents' open-ended feedback responses regarding the workshop are presented in Table 5. The most common responses from parents were that the information presented was easy to understand, it provided useful guidelines on how a parent can take action to help and support their adolescent, and that the intervention was well structured and well delivered. Parents did, however, express that they wanted more information to take away, more discussion, and wanted their adolescent involved in the program. The

follow-up interview and focus group enabled a deeper exploration of participants' perspectives on the value of the intervention, through which four important themes emerged: (a) parent motivation; (b) addressing different needs of parents; (c) usefulness; and (d) knock-on effect.

Parent motivation. Parents discussed their own reasons for attending the workshops, which were largely proactive in nature. They desired more information and awareness on adolescent mental health but also expressed the worries and uncertainties they felt as parents:

> (To) Be aware of those issues we discussed at the workshop. When is it a mental health issue or when is it just normal teenage behavior, we've had mood swings in the past, I imagine that's going to increase, I just wanted more information on warning signs to see when does behavior become a problem. (Focus group participant)

Addressing different needs of parents. Parents commented on how the workshop catered to the different needs of parents: "I found some of the information was general, I already knew but in saying that there probably would have been parents that haven't thought about that basic stuff so just those different levels which was great." (Interview participant) Parents also provided some suggestions for reaching more parents and capturing their attention:

> The information that we received and the handouts, they're the things that I think "jeez, you know what, that could be given out to every parent on the sideline." I think every parent is different and has different ideas but if they could see that, it probably wouldn't even enter their mind reading the initial email but if they are seeing that in front of them they might think jeez "I didn't even think hold on a second maybe that's not right", so the info was very helpful I think. (Focus group participant)

Usefulness of intervention content. Parents outlined the relevance and usefulness of the approaches and guidelines discussed in the workshop: "that guided time frame was really good to know. Ok well, it has been going on for a few weeks, so maybe it's something to look at." (Focus group participant)

> The whole conversation around what you could expect from a typically moody teenager to be diagnosing that, perhaps there's something more going on but that's not always going to be very clear to parents who are uneducated, so that's why I think there's so much benefit for the parents attending this sort of stuff. (Interview participant)

Knock-on effect. Parents suggested that quick access to more information and resources could help generate discussion among parents: "Having access to those resources on web or app can bring it up in

conversation" (Focus group participant). Two of the four parents reported that they used the workshop itself as a discussion point to talk to their adolescent son about mental health:

> After the seminar that you gave I took home that information and shared that with him (son) so it was just about opening those communication channels making him aware of issues and I suppose bringing him up to, you know, no matter what issue it's always good to talk about it. (Focus group participant)

Discussion

The authors aimed to develop and pilot test a parent mental health literacy intervention through community sports clubs. The intervention consisted of a brief parent workshop to raise awareness of the role of parents in adolescent mental health and educate parents on symptom recognition, help-seeking options, strategies and resources for positive mental health, and communicating about mental health. Participants in the intervention group improved their depression and anxiety literacy, knowledge of help-seeking options, and confidence to assist someone experiencing a mental health disorder, to a greater extent than those in a matched control condition.

The intervention was designed to address all components of mental health literacy including symptom recognition, knowledge of help seeking options and treatment, and attitudes to mental health and help seeking. Recognition of symptoms is crucial to the identification of existing youth mental health disorders and treatment utilization (Mendenhall & Frauenholtz, 2015) with multiple studies showing that parents are largely uncertain in their ability to identify symptoms (Pescosolido et al., 2008, Frauenholtz, Conrad-Hiebner, & Mendenhall, 2015). Consistent with previous research (Dietz et al., 2009), the intervention workshop increased parents' knowledge of depression and anxiety. Moreover, the current intervention focused on distinguishing between symptoms and normal teenage behavior, a need reported by parents previously (Hurley et al., 2017). Qualitative data revealed that parents found information on the "warning signs" of depression and anxiety in teenagers particularly valuable.

Another crucial component of mental health literacy is knowledge of how and where to seek information on mental health disorders and treatment options (Jorm et al., 1997). Parents in the intervention condition increased their knowledge of help-seeking options and highlighted the usefulness of the help-seeking information, actions and resources presented. These findings are particularly important as the most common help-seeking barrier reported by parents is not knowing where to go for help (Lawrence et al., 2015). Increases in knowledge of mental health disorders and help-seeking options were accompanied by an increase in parental

confidence to help someone experiencing a mental health disorder, consistent with previous qualitative findings (Gilbo et al., 2015).

In addition to parents' knowledge and confidence, the capacity to effectively aid an adolescent experiencing a mental health disorder is influenced by parents' attitudes to mental health (Rickwood, Deane, & Wilson, 2007). Past research has found that parental attitudes towards mental health can influence their willingness to address their adolescent's mental health and their intention to assist their adolescent in seeking appropriate help (Mendenhall, 2012). In the current study, attitudes to facilitate mental health promotion and help seeking were unchanged at follow-up. However, it should be noted that scores were high (i.e., favorable attitudes) at baseline for both intervention and control group participants, suggesting ceiling effects. Importantly, findings from this study demonstrate that parents' attitudes were generally quite favorable in discussing, preventing and seeking help for mental health disorders. This is supportive of previous research findings of youth sport parents (Hurley et al., 2017).

The intervention did not significantly decrease parent psychological distress scores, but it should be noted that the majority of parents (83%) scored in the low distress category. The relationship between mental health literacy and psychological distress is still unclear with studies reporting both negative (e.g., Goldney, Eckert, Hawthorne, & Taylor, 2010) and positive (e.g., Brijnath et al., 2016) associations. Future research is warranted on the potential positive or harmful effects of increasing mental health literacy on psychological distress and well-being.

This intervention was designed to target the mental health literacy needs of parents in the context of the parent-adolescent relationship. The results of the process evaluation indicate that parents valued the intervention workshop, and found the content relevant, important, helpful, understandable and engaging. In particular, parents appreciated how the workshop was specifically aimed at parents. In contrast to previous mental health literacy interventions for parents and other caregivers (Dietz et al., 2009, Story et al., 2016), this intervention was informed by and specifically designed for parents of adolescents. Both the quantitative and qualitative data show that the intervention raised awareness of the importance of parents' role in adolescent mental health promotion, and provided parents with a range of strategies and resources to be proactive, and adequately prepared for, adolescent mental health issues. Through follow-up interviews, parents revealed that the workshop was a catalyst for discussion about mental health in their own families and that they had applied knowledge gained through the intervention workshop.

This study demonstrates the potential for engaging parents though community sport clubs. Recent research suggests that parents identify close social and support links with other parents in the sport club environment (Dorsch, Smith, & McDonough, 2009, 2015; Hurley et al., 2017). Our results show that parents would be willing to recommend the workshop to other parents and could be used in the recruitment of others into a community mental health intervention. For example, the process evaluation revealed that parents used the workshop as a conversation starter with their adolescent sons about the importance of communicating about mental health. Such findings indicate that parents' and adolescents' mental health literacy might be simultaneously targeted to maximize potential benefits.

Also, consistent with previous research (e.g., Gilbo et al., 2015), the current findings provide evidence that brief interventions can have a meaningful impact on parent outcomes (in this case, mental health literacy) while overcoming parents' reported time commitment issues. Parents in the intervention group reported that the length of time was appropriate and that the workshop was informative but still easy to follow and understand. However, some parents desired more in-depth discussion on some issues suggesting the potential for additional content. For example, some parents wanted more discussion on identifying possible symptoms of depression and anxiety compared to normal teenage behavior. To address this need and encourage discussion and reflection, parents could discuss scenarios in which a teenager is either displaying "typical" teenage behavior or possible symptoms of depression and anxiety. Parents also wanted and could be provided with more information on the realities of the help-seeking process. For example, what can a parent do if their adolescent does not want to talk or seek help, and what can parents expect from mental health services and professionals. Based on parents' feedback, videos could be increasingly used as a time effective and engaging method to deliver additional material. As parents did not want to attend multiple workshop sessions, these additions could be incorporated into existing workshop discussions and in supplementary online material, with a focus on providing both information and action steps to follow. It should be noted that use of the intervention website as a source of supplementary material was minimal among those parents who had attended an in-person workshop.

Limitations

The study is not without its limitations. While mental health knowledge and attitudes were measured, intentions to seek help or actual help-seeking behaviors were not directly assessed. Reviews of mental health literacy interventions have shown somewhat conflicting findings regarding effectiveness on help seeking and supportive behaviors. A systematic review found that while mental health literacy interventions led to improvements in help-seeking attitudes, this effect was not shown for help-seeking behaviours (Gulliver,

Griffiths, Christensen, & Brewer, 2012). A recent meta-analysis of Mental Health First Aid interventions also showed significant increases in participants' mental health knowledge and supportive behaviors towards a person with a mental health problem, and decreases in negative mental health attitudes (Hadlaczky et al., 2014). Therefore, it appears pertinent for future research to longitudinally examine the effect of the current intervention on parents' help-seeking intentions, actual supportive behaviors and treatment utilization for their adolescents. Indeed, the transfer of benefit from participants to others is a key assumption of interventions on mental health literacy (Andersen & Pierce, 2012).

Other limitations of this study include the use of self-report measures, and limited intervention reach and engagement. Parent mental health literacy scores may have been subject to self-report bias (e.g., Gorber & Tremblay, 2016), by giving socially desirable responses in regards to stigmatizing attitudes or psychological distress. Moreover, parents who self-selected into the intervention and had largely a proactive motivation for participating may have been less likely to hold stigmatizing attitudes in comparison to those who did not participate. Thus, as has been found in previous research (Snell-Johns, Mendez, & Smith, 2004), those parents with higher stigmatizing attitudes and a potentially greater need for mental health education may not have engaged with the intervention. One of the biggest challenges to reaching and engaging parents was convincing parents of the importance and relevance of mental health promotion for *their* family, despite favorable attitudes to mental health promotion in general. The relevance and acceptability of prevention and treatment programs are crucial factors in fostering parent and family engagement (Staudt et al., 2007). Therefore future research needs to assess and tailor intervention content to the varying needs of sport parents, facilitate preferences for access to information, and make optimal use of parent social networks to reach and engage more parents. In addition, participation in sport is associated with reduced risk for mental health issues (Vella, Cliff, Magee, & Okely, 2015), and so by focusing solely on community sport clubs, adolescents and their parents not involved in sport, and potentially at greater risk, may have missed the opportunity to participate. The program could therefore be offered to parents in other community parent and youth groups such as Scouts and after school activity clubs.

Other barriers to recruitment included organizational structures within sport clubs and the length of the sport season. Indeed, two of the five workshop sessions were conducted with parents recruited at a sport association level rather than through a community sport club. The parents who participated in these sessions were from a variety of different sport clubs and were brought together to counteract recruitment difficulties, scheduling and time constraints. Recruitment of sufficient numbers of parents within individual clubs proved difficult despite the use of multiple engagement strategies as discussed previously. By recruiting at an

association level, the important influence of the parent social support networks found though the community sport club environment might have been lost, potentially attenuating the relative success and reach of the intervention. Future interventions in community sport clubs need to effectively engage with key members of the sport club early in the sport season, be visible within the sport club community to develop trust and relationships, and work with clubs to ensure optimal promotion to all its members through club and other community channels. Future research could also engage parents of adolescent female athletes and test the effectiveness of mental health promotion interventions across all youth teams within the community sport club. For example, some parents suggested mass targeting of parents on the sideline of sports games or training sessions by handing out pamphlets on adolescent mental health and thus generating conversations between parents. With this potential, there is a need to come up with innovative methods to measure the effects of such an approach.

To conclude, this study was set out to develop and pilot a parental mental health literacy intervention through a community sports club. Parents who participated in a brief workshop showed greater increases in mental health literacy compared to a matched control condition. Moreover, parents increased their recognition of mental health disorders (depression and anxiety), improved their knowledge of help-seeking options, and were more confident in supporting someone developing or experiencing a mental health disorder. This pilot intervention demonstrates the potential of mental health literacy interventions to effectively target parents and to be integrated within existing community structures and organizations. It also provides preliminary support for the role of sport clubs in reaching and engaging parents and facilitating positive mental health outcomes. Finally, it provides evidence for the acceptability, feasibility and effectiveness of a brief workshop intervention to develop parental mental health literacy through community sports clubs.

406 **Compliance with Ethical Standards**

407 **Funding.** This work was supported by the Movember Foundation [The Australian Mental Health
408 Initiative 2014].

409 **Ethical Approval**. All procedures performed in studies involving human participants were in
410 accordance with the ethical standards of the institutional research committee of the University of Wollongong,
411 Australia and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

412 **Informed consent**. Informed consent was obtained from all individual participants included in the
413 study.

414 **Author Contributions**

415 DH designed and executed the study, ran the data analysis and wrote the paper. MSA collaborated with the
416 design, writing and editing of the study. CS collaborated with the design, writing and editing of the study. ADO
417 reviewed a draft of the paper. SAV collaborated with the design, writing and editing of the study.

418 **Conflict of Interest**

419 The authors declare that they have no competing interests.

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Table 1

Intervention Workshop Outline

Mental Health Literacy Component	Objective/s	Activities and resources	Time allotted
Attitudes towards seeking knowledge and help	Raise awareness of parents' role in supporting positive adolescent mental health	Facilitator led group discussion *ReachOut* Video: Adolescents need parent support	10-15 mins
Capacity to recognize the development or signs of a disorder	Learn about Depression and Anxiety and how to differentiate symptoms from normal teenage behaviour	Information and discussion on symptoms vs regular teenage behaviour	15-20 mins
Knowledge about professional help-seeking and treatment options	Raise awareness and knowledge of professional help seeking services available to parents and youth	Information and discussion of professional help-seeking options	10 mins
Capacity to help	Learn how to communicate about mental health with teenagers	How to, step by step guide, to communicating about mental health with adolescents (Fischer, Kelly, Kitchener & Jorm, 2013). Video "Talking about teenage depression" *Raising Children Network* website	15 mins
Knowledge of preventive and self-help strategies	Explore ways parents can encourage mentally healthy behaviours in their children	Group discussion and outline of mentally healthy strategies (Morgan & Jorm, 2009; Yap et al., 2014)	5 mins
Knowledge and capacity to help	Raise awareness and knowledge of mental health resources available to parents	Handout pamphlet with key information from workshop and list of mental health organisations and websites. Access to optional supplementary online material "*Ahead of the Game"* website	Post workshop

Table 2

Mean scores and standard deviations on outcome measures for intervention group at Time 1, Time 2 and Time 3.

Variable	Pre intervention (T1) (n = 42)		Post intervention (T2) (n = 42)		1 month follow up (T3) (n = 31)	
	M	SD	*M*	SD	*M*	SD
Depression literacy	9.77	2.27	11.07*	1.60	11.17**	1.70
Anxiety literacy	8.73	2.84	9.83*	2.00	10.13**	2.13
Confidence	3.00	1.10	3.81*	1.00	3.87**	.96
Overall mental health literacy	77.53	9.28	81.33*	6.67	80.53**	8.27
Knowledge of help-seeking options	16.65	2.92	18.26*	2.14	18.48**	2.90
Stigmatizing attitudes	20.53	3.53	21.13	2.97	21.17	2.96
MHLS attitudes	40.35	5.37	42.00*	3.65	40.90	4.53

Note. MHLS attitudes = attitudes that promote recognition or appropriate help seeking.

*Significant increase from Time 1 to Time 2 ($p < .05$).

**Significant increase from Time 1 to Time 3 ($p < .05$).

Table 3

Adjusted means for all outcome variables when controlling for pre-intervention scores

	1 month follow up			
	Experimental (n = 31)		Control (n = 24)	
Variable	*M*	SD	*M*	SD
Depression literacy	11.10*	.30	9.04	.34
Anxiety literacy	9.83*	.34	7.78	.39
Confidence	4.00*	.13	3.25	.15
Overall mental health literacy	80.07	.88	78.47	1.02
Knowledge of help-seeking options	18.44*	.31	17.23	.35
Stigmatizing attitudes	20.74	.48	20.17	.54
MHLS attitudes	40.88	.58	40.86	.68
Psychological distress	9.65	.49	10.16	.55

Note. *Significant difference between groups ($p < .05$)

Table 4

Mean participant feedback scores

Statement	Mean score (Range 1-4)
How satisfied were you with the content of the workshop?	3.64
How helpful do you think the content of the workshop was?	3.70
How relevant do you think the content of the workshop was?	3.81
Overall, how much did you enjoy the workshop?	3.59
Overall, how much did you learn from the workshop?	3.21
Overall, the facilitator knew the content well and communicated it clearly	3.84
How important do you think the content of the workshop was?	3.84
Overall, how easy was the content of the workshop to understand?	3.89
Overall, how likely are you to recommend this workshop to a friend?	3.75

Note. Higher scores indicate more favorable responses

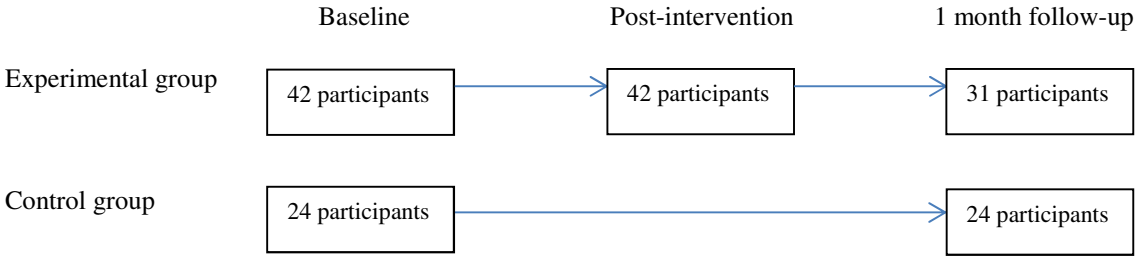
Table 5

Parents' feedback comments and number of responses

Feedback comments (No. of parent responses)	Example comment
Easy to understand (14)	The information was clear, concise and easy to understand
Need for more information(10)	Provide more information on handouts on information shown in presentation
Awareness(7)	Good to bring mental illness awareness into the community
Useful action guidelines/steps(8)	Sensible, realistic ways of helping
Targeted(2)	I like that it targeted parents
Understanding warning signs (3)	It gave a lot of indicators of depression and anxiety to look for
Delivery: Good delivery and presentation (7) Interactive /Engaging (3) Appropriate Time/Length (6)	Good balance of talking, watching videos and audience participation Good use of time, not too long
Content: Informative (10) Videos(3) Examples and resources(8)	Reinforced my understanding of mental health issues and provided information on services I hadn't heard of
More Discussion (4)	Perhaps a little longer discussions around group i.e., collective experience in these situations
Pass on information to others (2)	May have been helpful to include information on talking to your children about how to support their friends through problems-what to do if your child notices symptoms in their friends
Involve teens/boys(5)	Get the boys involved

Figure 1

Pilot study intervention design



Note: No. of participants with complete data at baseline, post-intervention and one month follow-up.