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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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community sports clubs

1   **Introduction**

2   Mental health disorders constitute a significant threat to the well-being of young people worldwide.

3   Children and adolescents constitute approximately one third of the world's population (2.2 billion individuals),

4   and mental health disorders are estimated to affect 10–20% of children and adolescents worldwide (Kieling et

5   al., 2011). Anxiety disorders and depressive disorders are the most prevalent mental health disorders affecting

6   children and adolescents (Polanczyk et al., 2015). Of particular concern is that over one-third of adolescents do

7   not seek help for mental health disorders (Lawrence et al., 2015; Rickwood, Deane, Wilson, & Ciarrochi, 2005).

8   Furthermore, adolescent males are less likely to seek help than adolescent females, despite having a higher risk

9   of developing mental health issues (Lawrence et al., 2015; Rickwood et al., 2005), and this is thought to reflect

10   issues such as stigma, inadequate mental health literacy, and self-reliance (Gulliver, Griffiths, & Christensen,

11   2010).

12   Research has shown that adolescents are more likely to reach out to informal (rather than formal)

13   sources of support such as family and friends (Jorm & Wright, 2007) and are more likely to seek professional

14   help if it is recommended and supported by these influential others (Rickwood, Deane, & Wilson, 2007).

15   Approximately 75% of the general public who have had a friend or family member experience a mental health

16   problem attempt to provide help (Reavley & Jorm, 2012), and therefore it is important that the public is

17   educated on how best to respond to and assist those experiencing symptoms. In particular, parents are a primary

18   source of support for adolescents (Jorm & Wright, 2007) and the likely first observers of mental health disorder

19   symptoms in adolescents (Mendenhall & Frauenholtz, 2015). Therefore, parents need to be able to provide

20   adequate support and assistance when their adolescent shows symptoms of a mental health disorder (Mason,

21   Hart, Rosetto & Jorm, 2015). However, research suggests that the mental health literacy of parents (in terms of

22   adolescents' mental health) is limited (Frauenholtz, Conrad-Hiebner, & Mendenhall, 2015) and parents are not

23   adequately prepared to assist adolescents who experience a mental health disorder (Pescosolido et al., 2008).

24   Mental health literacy refers to knowledge, attitudes, and beliefs about mental disorders and help

25   seeking that can facilitate symptom recognition, management, and prevention (Jorm et al., 1997; Jorm, 2012).

26   Mental health literacy incorporates knowledge of strategies for the prevention of mental health disorders,

27   effective self-help strategies, and professional help-seeking and treatment options (Jorm et al., 1997). It includes

28   the capacity to recognize the development or existence of symptoms of mental health disorders and the self-

29   confidence to help others who may be experiencing or developing a mental health disorder. It also captures the

30   attitudes that can facilitate or inhibit mental health promotion and help seeking (Jorm et al., 1997).

31   Low levels of mental health literacy in parents can have adverse consequences for adolescent mental

32   health including missed identification and diagnosis of symptoms, delayed help seeking or non-treatment, and

33   higher levels of stigma (Jorm, Wright, & Morgan, 2007; Mendenhall, 2012). Therefore, parents' mental health

34   literacy is a crucial factor for early recognition and treatment of adolescent mental health problems (Jorm, 2012;

35   Mendenhall & Frauenholtz, 2015) and should be a key target in interventions designed to improve adolescent

36   mental health (Mendenhall & Frauenholtz, 2015; Jorm, Wright, & Morgan, 2007). Indeed, parents themselves

37   have reported a need for greater mental health knowledge and information, particularly concerning the mental

38   health needs of adolescents (Hurley, Swann, Allen, Okely & Vella, 2017). In this research, it was found that

39   parents had low levels of mental health literacy and were often worried about the development of mental health

40   disorders in their adolescents. Moreover, parents expressed their difficulty in identifying the potential symptoms

41   of a mental health disorder and in their ability to discuss mental health with their adolescent.

42   Relatively few interventions have targeted parental mental health literacy, and fewer still have focused

43   on parents of adolescents. One brief, in-person psychoeducation intervention was conducted for parents of

44   adolescents with a mental health disorder (Gilbo et al., 2015). The intervention included a seminar with

45   education on youth mental health and small discussion groups. Qualitative evaluation revealed that parents

46   valued the information presented and reported increased knowledge of mental health disorders and treatments.

47   The qualitative investigation indicated that brief (single session) interventions can benefit parents and

48   adolescents. In another study, an educational online program for parents delivered in the workplace sought to

49   educate parents on depression and anxiety and help seeking services (Dietz et al., 2009). It was found that

50   parents using the website improved their mental health knowledge and confidence to handle mental health issues

51   to a greater extent than participants in a waitlist control condition. Two further studies targeted adult

52   gatekeepers' mental health literacy in relation to youth mental health disorders in community samples (Kelly et

53   al., 2011; Story et al., 2016). In both studies participants improved their mental health literacy from pre- to post-

54   intervention. Importantly, these interventions demonstrated the potential for mental health literacy interventions

55   to be integrated within existing community structures and organizations.

56   Family and parent-focused mental health intervention programs are not widely available and have

57   traditionally suffered from low participation rates (Ingoldsby, 2010). Common barriers to participation among

58   parents include time constraints, inconvenience, ease of access to information, a fear of stigma and a lack of

59   perceived need (Ingoldsby, 2010). There is a need for population-wide mental health promotion and prevention

60   programs that are accessible are less time consuming, aim to reduce stigma, and target the needs of parents. A

61   potential avenue for mental health promotion and prevention among adolescents and parents is community

62   sports clubs. Approximately half of all children and youth participate in organized sport worldwide with higher

63   participation rates in developed countries, such as Australia (Tremblay et al., 2016) indicating the potential for

64   community sport clubs to engage with young athletes and their parents. Parents are a key source of support in

65   adolescent sport participation (Harwood & Knight, 2015) and parent behavior has been targeted in the youth

66   sport environment as a mechanism to increase support and warmth, and reduce conflict and pressure (Dorsch,

67   King, Dunn, Osai, & Tulane, 2017). In addition, parents often fulfil the role of team coach, manager and other

68   volunteer positions in community sports clubs, thereby potentially extending the reach of mental health

69   promotion and intervention in this environment.

70   The potential benefits of youth sport participation for mental health are well documented (Eime et al.,

71   2013) but few sport organizations engage in mental health initiatives (Liddle, Deane, & Vella, 2016). However,

72   a previous study has shown that the mental health literacy of adult leaders in youth sport, such as coaches and

73   parents, can be improved (Bapat, Jorm, & Lawrence, 2009). By aligning mental health promotion with physical

74   health promotion, through the medium of a community sport club, it might become easier to facilitate

75   conversation around mental health, reduce stigma, and positively influence mental health knowledge and

76   attitudes (Anwar-McHenry, Donovan, Jalleh, & Laws, 2012). Indeed, this method of mental health promotion in

77   sport has been supported by the views of sport parents (Hurley et al., 2017).

78   The purpose of this study was to develop and pilot a brief mental health literacy intervention for

79   parents of adolescent males through community sport clubs. Considering the importance of parent mental health

80   literacy in the prevention and treatment of adolescent mental health disorders, it is surprising that so few

81   interventions have been developed. Interventions are clearly warranted, but are unlikely to be effective in the

82   absence of an evidence base to inform the design and delivery of large-scale intervention. Mental health literacy

83   interventions need to comprehensively capture all the components of mental health literacy, explore different

84   avenues for engaging with parents in the community, and be tailored to the particular group and context they are

85   targeting to have maximum impact (Kutcher, Wei, & Coniglio, 2016). For example, while targeting the broader

86   components of mental health literacy in parents, attention should also be paid to the unique parent-adolescent

87   relationship. Therefore, the purpose of this study was to: (a) develop a targeted mental health literacy

88   intervention for parents of adolescents through community sport clubs, (b) pilot the intervention in a small

89   sample of parents, and (c) evaluate the feasibility, acceptability, and effectiveness of a brief intervention in the

90   community sport club environment. Findings from this study will also be used to inform program

91   implementation as part of a larger project on the promotion of positive adolescent mental health through

92   community sport clubs.

93   **Method**

94   **Participants**

95   Parents were recruited from sport clubs in two matched communities in Australia. Neighborhood

96   socio-economic position was determined according to the Socio-Economic Indexes for Areas Index of Relative

97   Socio-Economic Disadvantage [SEIFA] (Australian Bureau of Statistics, 2008) using parents' home postcodes.

98   Nationwide, SEIFA scores are calculated to have a mean of 1000 and *SD* of 100. Participants in the current

99   study ranged from 1097.9 (95th percentile) – 940.7 (27th percentile) with a mean of 1018.6 (*SD* = 50; 80th

100   percentile). In total, 66 parents (M_{age} = 44.86 ± 5.2 years), comprised of 51 mothers (77%) and 17 fathers,

101   agreed to participate in the study. In the intervention group, 44 parents (34 women, 10 men) participated in one

102   of five workshops respectively. Participant numbers in each workshop ranged from three to 17. The control

103   group was made up of 24 parents (17 women, 7 men) from a matched community. Multiple recruitment

104   strategies were used, including advertisements (with permission) on sport clubs' social media and website pages

105   and on a regional sporting body's website. The lead researcher also visited youth sport clubs on training and

106   match days to increase visibility, develop trust, and facilitate recruitment. Interested parents provided their

107   contact details to receive further information about the study (via phone or email).

108   **Procedure**

109   **Intervention development.** The design, content, and delivery of the intervention was informed by

110   recent qualitative work that has explored parental perceptions of mental health literacy interventions and their

111   potential use in youth sport settings (Hurley et al., 2017). Parents stressed the dual needs of: (a) making parents

112   aware of the importance of their role in supporting adolescent mental health outcomes, and (b) of providing

113   clear, basic, brief information on mental health and the actions parents can take (Hurley et al., 2017). Parents

114   also wanted choice in how they accessed material, wanted information to be provided where parents are for ease

115   of accessibility, and commented on the supportive environment and parent social networks within community

116   sport clubs. Building on those findings, a brief (approximately 1 hour) in-person workshop, supplemented by

117   print and online content, was chosen as the method of delivery to meet parents' expressed needs, facilitate

118   shared learning and discussion, and reduce stigma and other barriers to participation.

119   The pilot intervention content was designed by the authors: (a) to raise awareness of parents' role in

120   promoting and supporting positive adolescent mental health, and (b) to increase parental mental health literacy.

121   Intervention content was guided by the mental health literacy framework (Jorm et al., 1997) and was designed to

122   be engaging through a mix of parent reflection, discussion, presentation, and brief videos (see Table 1).

123   Materials were developed and adapted from Mental Health First Aid guidelines (Fischer, Kelly, Kitchener, &

124   Jorm, 2013; Morgan & Jorm, 2009), or used with permission from mental health organizations and parenting

125   organizations (e.g., ReachOut, Raising Children Network). The content of the intervention workshop was

126   assessed for relevance and accuracy by a Mental Health First Aid trainer. Feedback was incorporated into the

127   final workshop, for example, putting more emphasis on how to tell the difference between regular teenage

128   behavior and the signs of a possible mental health disorder. The information presented was set at an introductory

129   level with supplementary online material offered via the intervention project website.

130   **Design.** This pilot study utilized a matched control design. A control group, who received no

131   intervention, consisted of parents drawn from sport clubs that were matched to the intervention clubs at a

132   community level. The control region was selected based on population size, number of adolescent male sport

133   participants, socioeconomic position, and sport culture, relative to the intervention region. Figure 1 illustrates

134   the design of the intervention and number of participants in both conditions across time points.

135   Ethical approval was gained from an institutional ethics committee. Workshops took place at local

136   sport clubs ($n = 2$) or at a university campus ($n = 3$). All participants provided informed consent prior to taking

137   part. The duration of the workshops varied from 55 – 80 minutes (mean = 65 minutes) depending on parent

138   engagement and discussion. Parents in the intervention group completed all measures at baseline, post-

139   workshop, and one month follow up. Parents in the control group completed measures at baseline and follow-up.

140   Workshops were led by the lead author who had mental health first aid certification and experience in delivering

141   mental health workshops. Following the workshop, parents received a pamphlet containing key information

142   from the workshop and were also directed to online resources should they require or want more information.

143   All parents who attended the workshops ($n = 44$) completed feedback measures, rating nine statements

144   (e.g., "Overall, how easy was the content of the workshop to understand?") from 1 (*not at all*) to 4 (*very*). There

145   was also open-ended space for parents to express what they liked, did not like, or would change about the

146   workshop and parents were encouraged to be honest in their responses. In addition, all intervention group

147   parents were invited to participate in follow-up interviews to provide more in-depth feedback on the workshop,

148   as well as their motivations to attend and suggestions for intervention refinement. In total, four parents in the

149   intervention group agreed to take part. One in-person focus group was conducted with three mothers (lasting for

150   40 minutes) and one father took part in a telephone interview (lasting 35 minutes). A semi-structured interview

151   guide was developed to investigate parents' reasons for attending the workshop, their perceptions of the

152   workshop content and delivery, and suggestions for further refinement of intervention content, delivery, and

153   recruitment strategies. Interview and focus group data were recorded and transcribed by the lead researcher.

154   **Measures**

155   **Anxiety literacy and depression literacy.** The Anxiety Literacy questionnaire (A-LIT; Gulliver et al.,

156   2012) and the Depression Literacy questionnaire (D-LIT; Griffiths et al., 2004) contain 22 statements measuring

157   disorder specific knowledge and attitudes. In both questionnaires nine statements that did not correspond to

158   intervention aims and content were excluded. Participants responded to 13 statements about depression and

159   anxiety with response categories of 1 (*true*), 2 (*false*), or 3 (*don't know*). An example statement is: "People with

160   depression/anxiety often speak in a rambling or disjointed way". One point is given for a correct response.

161   Higher scores are indicative of better anxiety or depression literacy. Both the A-LIT and D-LIT have

162   demonstrated adequate construct validity and test-retest reliability in adult samples (Gulliver et al., 2012).

163   **Mental health literacy.** Mental health literacy was assessed using an adapted 18-item version of the

164   Mental Health Literacy scale (O'Connor & Casey, 2015) which examines knowledge of, and attitude toward,

165   mental health and help seeking. The scale is comprised of three subscales: knowledge of help-seeking options (4

166   items), attitudes that promote recognition or appropriate help-seeking behavior (9 items) and stigmatizing

167   attitudes (5 items). Items are rated on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The scale

168   is appropriate to identify those with low levels of mental health literacy as well as changes in mental health

169   literacy resulting from an intervention program. The Mental Health Literacy scale has been found to have

170   adequate test-retest reliability and construct validity in adult samples (O'Connor & Casey, 2015).

171   **Parent psychological distress.** The Kessler-6 (K6; Kessler et al., 2002) is a six-item short screening

172   measure of psychological distress. Participants are asked to rate how often they have felt, for example, "restless

173   or fidgety" in the past 30 days from 1 (*none of the time*) to 5 (*all of the time*). The K6 has excellent internal

174   consistency and test-retest reliability and is suitable for use with different demographic adult samples (Kessler et

175   al., 2002).

176   **Parental confidence to provide help.** Participants also completed a single item measure of their

177   confidence to help someone experiencing a mental health problem, from 1 (*not at all confident*) to 5 (*extremely*

178   *confident*): If you had contact with someone who appeared to be experiencing a mental health problem, how

179   confident would you feel in helping them.

180   **Data Analyses**

181   One-way repeated measures analyses of variance (ANOVA) were conducted to explore change in

182   intervention group scores on all outcome measures at Time 1 (baseline), Time 2 (post-intervention) and Time 3

183   (one-month follow-up). One-way analyses of covariance (ANCOVA) were then conducted to compare scores

184   on all outcome measures between the intervention group and the matched control group at one month follow-up.

185   Pre-intervention scores on all outcome measures were included as covariates. The independent variable was

186   experimental or control group and the dependent variables were all psychological measure scores at one month

187   follow-up. Descriptive statistics were computed for participant feedback measures.

188   The interview, focus group and open-ended response data were analyzed inductively using thematic

189   analysis (Braun & Clarke, 2006). For open-ended written responses, individual participant comments were

190   coded, numbered and grouped together into feedback categories. For interview and focus group data, the lead

191   researcher first engaged in the process of *indwelling* (Maykut & Morehouse, 1994), becoming immersed in the

192   data through multiple readings of the transcripts. Initial codes were then developed to ascribe basic meaning to

193   the data. Similar codes were grouped together where appropriate to form explanatory themes.

194   Guided by a subjective relativist position (Sparkes & Smith, 2014), methodological rigor was enhanced

195   through the use of member reflections, peer debrief and rich description. First, member reflections of focus

196   group and interview participants were used to generate additional dialogue on parents' individual experiences

197   and interpretations of the intervention. The purpose of this process was not to verify results or reach consensus

198   but rather to facilitate more robust and enriched understanding through the exploration of multiple and

199   alternative perspectives (Smith & McGannon, 2017). Second, peer debrief (Creswell & Miller, 2000) was

200   conducted with other members of the research team. Through this continual process of formal and informal

201   discussion, colleagues acted as "critical friends", engaging in a constructive dialogue by providing support for or

202   challenging the lead researcher's assumptions and interpretations. Finally, a rich description of participants and

203   the community sport club environment enables the reader to judge for themselves about the appropriateness of

204   transfer or generalizability of findings, as suggested by Sparkes and Smith (2014).

205   **Results**

206   Of the 66 parents included in the study, 42 in the intervention group completed study measures at

207   baseline (Time 1) and post-intervention (Time 2) with 31 (74%) returning to complete measures at one month

208   follow-up (Time 3). In the control group, 24 parents completed measures at baseline and follow-up. There were

209   no significant differences between the intervention and control group on any outcome variable at baseline ($p >$

210   .05).

Pilot Intervention

212   For the intervention group, means and standard deviations for all outcome measures at Time 1

213   (baseline), Time 2 (post-intervention) and Time 3 (follow-up) are presented in Table 2. There was a significant

214   effect for Time on parents' confidence, $F(2, 29) = 17.55$, $p < .05$, $\eta_p^2 = .55$, depression literacy, $F(2, 28) = 7.79$,

215    $p < .05$, $\eta_p^2 = .36$, anxiety literacy, $F(2, 28) = 5.70$, $p < .05$, $\eta_p^2 = .24$, overall mental health literacy, $F(2, 28) =$

216   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

217   that promote recognition or appropriate help-seeking behavior, $F(2, 29) = 5.37$, $p < .05$, $\eta_p^2 = .27$. Post hoc pair-

218   wise comparisons using Bonferroni adjustments revealed that scores on all outcome measures, except for mental

219   health attitudes, increased from baseline to post-intervention and from baseline to follow up, with scores

220   maintained from post-intervention to follow up (see Table 2).

221   Adjusted means and standard errors for all outcome measures (at follow-up) for intervention and

222   control groups are presented in Table 3. After adjusting for baseline scores, there were significant differences

223   between the groups on depression literacy, $F(1, 52) = 20.63$, $p < .001$, $\eta_p^2 = .28$, anxiety literacy, $F(1, 50) =$

224   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

225   confidence, $F(1, 52) = 14.43$, $p < .001$, $\eta_p^2 = .22$. Participants in the experimental group increased their scores on

226   each of these measures to a greater extent than those in the matched control. There were no significant

227   differences between groups on overall mental health literacy, $F(1, 51) = 1.432$, $p = .237$, $\eta_p^2 = .027$, mental

228   health stigmatizing attitudes, $F(1, 52) = .600$, $p = .442$, $\eta_p^2 = .011$, attitudes that promote recognition or help-

229   seeking, $F(1, 51) = .000$, $p = .982$, $\eta_p^2 = .000$, or psychological distress $F(1, 52) = .490$, $p = .487$, $\eta_p^2 = .009$

230   after controlling for baseline scores.

Process Evaluation

232   Table 4 shows that participants responded favorably to intervention content and delivery with an

233   overall mean score of 3.7 of a possible 4.0. Parents' open-ended feedback responses regarding the workshop are

234   presented in Table 5. The most common responses from parents were that the information presented was easy to

235   understand, it provided useful guidelines on how a parent can take action to help and support their adolescent,

236   and that the intervention was well structured and well delivered. Parents did, however, express that they wanted

237   more information to take away, more discussion, and wanted their adolescent involved in the program. The

238 follow-up interview and focus group enabled a deeper exploration of participants' perspectives on the value of

239 the intervention, through which four important themes emerged: (a) parent motivation; (b) addressing different

240 needs of parents; (c) usefulness; and (d) knock-on effect.

241   **Parent motivation.** Parents discussed their own reasons for attending the workshops, which were

242 largely proactive in nature. They desired more information and awareness on adolescent mental health but also

243 expressed the worries and uncertainties they felt as parents:

244   (To) Be aware of those issues we discussed at the workshop. When is it a mental health issue or when

245   is it just normal teenage behavior, we've had mood swings in the past, I imagine that's going to

246   increase, I just wanted more information on warning signs to see when does behavior become a

247   problem. (Focus group participant)

248   **Addressing different needs of parents**. Parents commented on how the workshop catered to the

249 different needs of parents: "I found some of the information was general, I already knew but in saying that there

250 probably would have been parents that haven't thought about that basic stuff so just those different levels which

251 was great." (Interview participant) Parents also provided some suggestions for reaching more parents and

252 capturing their attention:

253   The information that we received and the handouts, they're the things that I think "jeez, you know

254   what, that could be given out to every parent on the sideline." I think every parent is different and has

255   different ideas but if they could see that, it probably wouldn't even enter their mind reading the initial

256   email but if they are seeing that in front of them they might think jeez "I didn't even think hold on a

257   second maybe that's not right", so the info was very helpful I think. (Focus group participant)

258   **Usefulness of intervention content.** Parents outlined the relevance and usefulness of the approaches

259 and guidelines discussed in the workshop: "that guided time frame was really good to know. Ok well, it has

260 been going on for a few weeks, so maybe it's something to look at." (Focus group participant)

261   The whole conversation around what you could expect from a typically moody teenager to be

262   diagnosing that, perhaps there's something more going on but that's not always going to be very clear

263   to parents who are uneducated, so that's why I think there's so much benefit for the parents attending

264   this sort of stuff. (Interview participant)

265   **Knock-on effect.** Parents suggested that quick access to more information and resources could help

266 generate discussion among parents: "Having access to those resources on web or app can bring it up in

267   conversation" (Focus group participant). Two of the four parents reported that they used the workshop itself as a

268   discussion point to talk to their adolescent son about mental health:

269   After the seminar that you gave I took home that information and shared that with him (son) so it was

270   just about opening those communication channels making him aware of issues and I suppose bringing

271   him up to, you know, no matter what issue it's always good to talk about it. (Focus group participant)

272   **Discussion**

273   The authors aimed to develop and pilot test a parent mental health literacy intervention through

274   community sports clubs. The intervention consisted of a brief parent workshop to raise awareness of the role of

275   parents in adolescent mental health and educate parents on symptom recognition, help-seeking options,

276   strategies and resources for positive mental health, and communicating about mental health. Participants in the

277   intervention group improved their depression and anxiety literacy, knowledge of help-seeking options, and

278   confidence to assist someone experiencing a mental health disorder, to a greater extent than those in a matched

279   control condition.

280   The intervention was designed to address all components of mental health literacy including symptom

281   recognition, knowledge of help seeking options and treatment, and attitudes to mental health and help seeking.

282   Recognition of symptoms is crucial to the identification of existing youth mental health disorders and treatment

283   utilization (Mendenhall & Frauenholtz, 2015) with multiple studies showing that parents are largely uncertain in

284   their ability to identify symptoms (Pescosolido et al., 2008, Frauenholtz, Conrad-Hiebner, & Mendenhall, 2015).

285   Consistent with previous research (Dietz et al., 2009), the intervention workshop increased parents' knowledge

286   of depression and anxiety. Moreover, the current intervention focused on distinguishing between symptoms and

287   normal teenage behavior, a need reported by parents previously (Hurley et al., 2017). Qualitative data revealed

288   that parents found information on the "warning signs" of depression and anxiety in teenagers particularly

289   valuable.

290   Another crucial component of mental health literacy is knowledge of how and where to seek

291   information on mental health disorders and treatment options (Jorm et al., 1997). Parents in the intervention

292   condition increased their knowledge of help-seeking options and highlighted the usefulness of the help-seeking

293   information, actions and resources presented. These findings are particularly important as the most common

294   help-seeking barrier reported by parents is not knowing where to go for help (Lawrence et al., 2015). Increases

295   in knowledge of mental health disorders and help-seeking options were accompanied by an increase in parental

296   confidence to help someone experiencing a mental health disorder, consistent with previous qualitative findings

297   (Gilbo et al., 2015).

298   In addition to parents' knowledge and confidence, the capacity to effectively aid an adolescent

299   experiencing a mental health disorder is influenced by parents' attitudes to mental health (Rickwood, Deane, &

300   Wilson, 2007). Past research has found that parental attitudes towards mental health can influence their

301   willingness to address their adolescent's mental health and their intention to assist their adolescent in seeking

302   appropriate help (Mendenhall, 2012). In the current study, attitudes to facilitate mental health promotion and

303   help seeking were unchanged at follow-up. However, it should be noted that scores were high (i.e., favorable

304   attitudes) at baseline for both intervention and control group participants, suggesting ceiling effects.

305   Importantly, findings from this study demonstrate that parents' attitudes were generally quite favorable in

306   discussing, preventing and seeking help for mental health disorders. This is supportive of previous research

307   findings of youth sport parents (Hurley et al., 2017).

308   The intervention did not significantly decrease parent psychological distress scores, but it should be

309   noted that the majority of parents (83%) scored in the low distress category. The relationship between mental

310   health literacy and psychological distress is still unclear with studies reporting both negative (e.g., Goldney,

311   Eckert, Hawthorne, & Taylor, 2010) and positive (e.g., Brijnath et al., 2016) associations. Future research is

312   warranted on the potential positive or harmful effects of increasing mental health literacy on psychological

313   distress and well-being.

314   This intervention was designed to target the mental health literacy needs of parents in the context of

315   the parent-adolescent relationship. The results of the process evaluation indicate that parents valued the

316   intervention workshop, and found the content relevant, important, helpful, understandable and engaging. In

317   particular, parents appreciated how the workshop was specifically aimed at parents. In contrast to previous

318   mental health literacy interventions for parents and other caregivers (Dietz et al., 2009, Story et al., 2016), this

319   intervention was informed by and specifically designed for parents of adolescents. Both the quantitative and

320   qualitative data show that the intervention raised awareness of the importance of parents' role in adolescent

321   mental health promotion, and provided parents with a range of strategies and resources to be proactive, and

322   adequately prepared for, adolescent mental health issues. Through follow-up interviews, parents revealed that

323   the workshop was a catalyst for discussion about mental health in their own families and that they had applied

324   knowledge gained through the intervention workshop.

325   This study demonstrates the potential for engaging parents though community sport clubs. Recent

326   research suggests that parents identify close social and support links with other parents in the sport club

327   environment (Dorsch, Smith, & McDonough, 2009, 2015; Hurley et al., 2017). Our results show that parents

328   would be willing to recommend the workshop to other parents and could be used in the recruitment of others

329   into a community mental health intervention. For example, the process evaluation revealed that parents used the

330   workshop as a conversation starter with their adolescent sons about the importance of communicating about

331   mental health. Such findings indicate that parents' and adolescents' mental health literacy might be

332   simultaneously targeted to maximize potential benefits.

333   Also, consistent with previous research (e.g., Gilbo et al., 2015), the current findings provide evidence

334   that brief interventions can have a meaningful impact on parent outcomes (in this case, mental health literacy)

335   while overcoming parents' reported time commitment issues. Parents in the intervention group reported that the

336   length of time was appropriate and that the workshop was informative but still easy to follow and understand.

337   However, some parents desired more in-depth discussion on some issues suggesting the potential for additional

338   content. For example, some parents wanted more discussion on identifying possible symptoms of depression

339   and anxiety compared to normal teenage behavior. To address this need and encourage discussion and

340   reflection, parents could discuss scenarios in which a teenager is either displaying "typical" teenage behavior or

341   possible symptoms of depression and anxiety. Parents also wanted and could be provided with more information

342   on the realities of the help-seeking process. For example, what can a parent do if their adolescent does not want

343   to talk or seek help, and what can parents expect from mental health services and professionals. Based on

344   parents' feedback, videos could be increasingly used as a time effective and engaging method to deliver

345   additional material. As parents did not want to attend multiple workshop sessions, these additions could be

346   incorporated into existing workshop discussions and in supplementary online material, with a focus on

347   providing both information and action steps to follow. It should be noted that use of the intervention website as

348   a source of supplementary material was minimal among those parents who had attended an in-person workshop.

349   **Limitations**

350   The study is not without its limitations. While mental health knowledge and attitudes were measured,

351   intentions to seek help or actual help-seeking behaviors were not directly assessed. Reviews of mental health

352   literacy interventions have shown somewhat conflicting findings regarding effectiveness on help seeking and

353   supportive behaviors. A systematic review found that while mental health literacy interventions led to

354   improvements in help-seeking attitudes, this effect was not shown for help-seeking behaviours (Gulliver,

355   Griffiths, Christensen, & Brewer, 2012). A recent meta-analysis of Mental Health First Aid interventions also

356   showed significant increases in participants' mental health knowledge and supportive behaviors towards a

357   person with a mental health problem, and decreases in negative mental health attitudes (Hadlaczky et al., 2014).

358   Therefore, it appears pertinent for future research to longitudinally examine the effect of the current intervention

359   on parents' help-seeking intentions, actual supportive behaviors and treatment utilization for their adolescents.

360   Indeed, the transfer of benefit from participants to others is a key assumption of interventions on mental health

361   literacy (Andersen & Pierce, 2012).

362   Other limitations of this study include the use of self-report measures, and limited intervention reach

363   and engagement. Parent mental health literacy scores may have been subject to self-report bias (e.g., Gorber &

364   Tremblay, 2016), by giving socially desirable responses in regards to stigmatizing attitudes or psychological

365   distress. Moreover, parents who self-selected into the intervention and had largely a proactive motivation for

366   participating may have been less likely to hold stigmatizing attitudes in comparison to those who did not

367   participate. Thus, as has been found in previous research (Snell-Johns, Mendez, & Smith, 2004), those parents

368   with higher stigmatizing attitudes and a potentially greater need for mental health education may not have

369   engaged with the intervention. One of the biggest challenges to reaching and engaging parents was convincing

370   parents of the importance and relevance of mental health promotion for *their* family, despite favorable attitudes

371   to mental health promotion in general. The relevance and acceptability of prevention and treatment programs are

372   crucial factors in fostering parent and family engagement (Staudt et al., 2007). Therefore future research needs

373   to assess and tailor intervention content to the varying needs of sport parents, facilitate preferences for access to

374   information, and make optimal use of parent social networks to reach and engage more parents. In addition,

375   participation in sport is associated with reduced risk for mental health issues (Vella, Cliff, Magee, & Okely,

376   2015), and so by focusing solely on community sport clubs, adolescents and their parents not involved in sport,

377   and potentially at greater risk, may have missed the opportunity to participate. The program could therefore be

378   offered to parents in other community parent and youth groups such as Scouts and after school activity clubs.

379   Other barriers to recruitment included organizational structures within sport clubs and the length of the

380   sport season. Indeed, two of the five workshop sessions were conducted with parents recruited at a sport

381   association level rather than through a community sport club. The parents who participated in these sessions

382   were from a variety of different sport clubs and were brought together to counteract recruitment difficulties,

383   scheduling and time constraints. Recruitment of sufficient numbers of parents within individual clubs proved

384   difficult despite the use of multiple engagement strategies as discussed previously. By recruiting at an

385   association level, the important influence of the parent social support networks found though the community

386   sport club environment might have been lost, potentially attenuating the relative success and reach of the

387   intervention. Future interventions in community sport clubs need to effectively engage with key members of the

388   sport club early in the sport season, be visible within the sport club community to develop trust and

389   relationships, and work with clubs to ensure optimal promotion to all its members through club and other

390   community channels. Future research could also engage parents of adolescent female athletes and test the

391   effectiveness of mental health promotion interventions across all youth teams within the community sport club.

392   For example, some parents suggested mass targeting of parents on the sideline of sports games or training

393   sessions by handing out pamphlets on adolescent mental health and thus generating conversations between

394   parents. With this potential, there is a need to come up with innovative methods to measure the effects of such

395   an approach.

396   To conclude, this study was set out to develop and pilot a parental mental health literacy intervention

397   through a community sports club. Parents who participated in a brief workshop showed greater increases in

398   mental health literacy compared to a matched control condition. Moreover, parents increased their recognition

399   of mental health disorders (depression and anxiety), improved their knowledge of help-seeking options, and

400   were more confident in supporting someone developing or experiencing a mental health disorder. This pilot

401   intervention demonstrates the potential of mental health literacy interventions to effectively target parents and to

402   be integrated within existing community structures and organizations. It also provides preliminary support for

403   the role of sport clubs in reaching and engaging parents and facilitating positive mental health outcomes.

404   Finally, it provides evidence for the acceptability, feasibility and effectiveness of a brief workshop intervention

405   to develop parental mental health literacy through community sports clubs.

Compliance with Ethical Standards

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

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

Author Contributions

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

Conflict of Interest

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

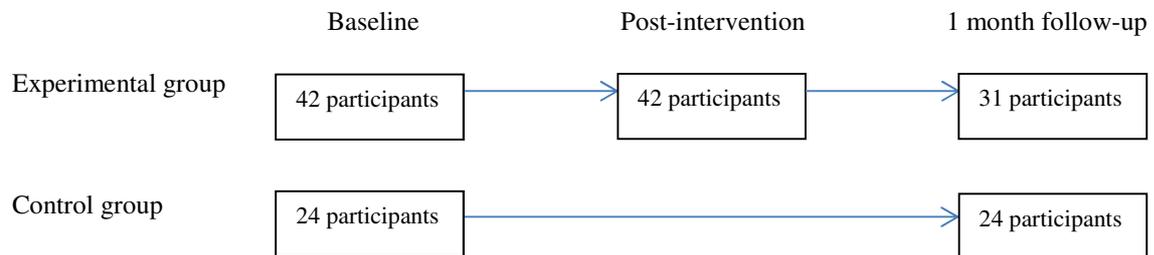| Statement	Mean score (Range 1-4)
How satisfied were you with the content of the workshop?	3.64
How helpful do you think the content of the workshop was?	3.70
How relevant do you think the content of the workshop was?	3.81
Overall, how much did you enjoy the workshop?	3.59
Overall, how much did you 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

	Baseline	Post-intervention	1 month follow-up
Experimental group	42 participants	42 participants	31 participants
Control group	24 participants		24 participants

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