Journal of Adolescence 57 (2017) 74–89

Contents lists available at ScienceDirect

Journal of Adolescence

journal homepage: www.elsevier.com/locate/jado

Effectiveness of a pragmatic school-based universal intervention targeting student resilience protective factors in reducing mental health problems in adolescents

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ARTICLE INFO

Article history:
Received 15 December 2016
Received in revised form 28 March 2017
Accepted 29 March 2017
Available online 3 April 2017

Keywords:
Adolescence
Universal intervention
Resilience
Mental health
Schools
Prevention

ABSTRACT

Worldwide, 10–20% of adolescents experience mental health problems. Strategies aimed at strengthening resilience protective factors provide a potential approach for reducing mental health problems in adolescents. This study evaluated the effectiveness of a universal, school-based intervention targeting resilience protective factors in reducing mental health problems in adolescents. A cluster randomised controlled trial was conducted in 20 intervention and 12 control secondary schools located in socio-economically disadvantaged areas of NSW, Australia. Data were collected from 3115 students at baseline (Grade 7, 2011), of whom 2149 provided data at follow up (Grade 10, 2014; enrolments in Grades 7 to 10 typically aged 12–16 years; 50% male; 69.0% retention). There were no significant differences between groups at follow-up for three mental health outcomes: total SDQ, internalising problems, and prosocial behaviour. A small statistically significant difference in favour of the control group was found for externalising problems. Findings highlight the continued difficulties in developing effective, school-based prevention programs for mental health problems in adolescents.

Trial registration: ANZCTR (Ref no: ACTRN12611000606987).

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Worldwide, the reported prevalence of mental health problems in adolescents is typically between 10 and 20% (Kieling et al., 2011). Adolescence, commonly defined as the second decade of life (10–19 years) (World Health Organisation,

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http://dx.doi.org/10.1016/j.adolescence.2017.03.009

2014), is a time of extensive physical and social development, during which capabilities vital for successful progression into adulthood are established (Blakemore & Mills, 2014). Additionally, adolescence traverses the age range of onset for most mental health disorders that are likely to persist into adulthood (Kessler et al., 2005; Patel, Flisher, Hetrick, & McGorry, 2007). Mental health problems negatively impact young people both during adolescence and into adulthood. Such negative impacts include emotional distress, lower educational achievements, higher likelihood of engagement in health risk behaviours and higher rates of self-harm and suicide (Fergusson & Woodward, 2002). As such, improving mental health in adolescents is a recognised health imperative internationally (Buckley et al., 2011).

Previous research has suggested that an approach that strengthens protective factors, often termed building 'resilience'(Minnard, 2002), may reduce mental health problems in adolescents (Davydov, Stewart, Ritchie, & Chaudieu, 2010; Luthar, Cicchetti, & Becker, 2000). Protective factors for resilience include both internal factors (e.g. self-efficacy, effective problem solving); and external factors within the wider social environment (e.g. meaningful participation within home, school or community environments) (Cowen et al., 1996; Fergus & Zimmerman, 2005; Lee & Stewart, 2013; Sun & Stewart, 2010). Theoretical models of resilience are centrally concerned with positive adaptation and are commonly based on the premise that protective factors act as moderators that reduce the impact of deleterious factors such as risk factors or adversity, reducing the impact of negative outcomes (such as prevalence of mental health problems), and promoting positive outcomes (such as positive mental health)(Fergus & Zimmerman, 2005; Friedli, 2009). This suggestion is supported by results of previous research, which has found high levels of protective factors to be associated with lower levels of mental health problems such as anxiety, depression, stress and obsessive-compulsive disorder in adolescents (Bond, Toumbourou, Thomas, Catalano, & Patton, 2005; Hjemdal, Friborg, Stiles, Rosenvinge, & Martinussen, 2006; Hjemdal, Vogel, Solem, Hagen, & Stiles, 2011).

As schools provide access to adolescents for prolonged periods and promote student development and wellbeing (Seligman, Ernst, Gillham, Reivich, & Linkins, 2009), they represent an opportune setting for interventions targeting resilience protective factors as a means of preventing adolescent mental health problems (Brooks, 2006; Greenberg, Domitrovich, & Bumbarger, 2001). Universal school-based interventions - those that target whole populations or groups of students not identified as having, or being at-risk of, mental health problems (Weisz, Sandler, Durlak, & Anton, 2005) - have been recommended and are widely implemented for the promotion of mental health in young people (O'Mara & Lind, 2013).

In recent decades, many school-based randomised controlled trials have investigated the effect of universal interventions targeting multiple internal and or external resilience protective factors on mental health outcomes in adolescents. The large majority of such trials have measured the effect of interventions on internalising problems including anxiety, depression and composite scores of internalising symptoms, with many indicating significant positive results on at least one outcome (e.g. Calear, Christensen, Mackinnon, Griffiths, & O'Kearney, 2009; Cardemil, Reivich, Beevers, Seligman, & James, 2007; Chaplin et al., 2006; Gillham et al., 2007; Horowitz, Garber, Ciesla, Young, & Mufson, 2007; Leventhal et al., 2015; Lock & Barrett, 2003; Merry, McDowell, Wild, Bir, & Cunliffe, 2004; Rivet-Duval, Heriot, & Hunt, 2011; Rodgers & Dunsmuir, 2015; Rose, Hawes, & Hunt, 2014; Ruini et al., 2009; Tomba et al., 2010), and others reporting no significant effect (e.g. Araya et al., 2013; Bond, Patton, & Glover, 2004; Burckhardt et al., 2015; Buttigieg et al., 2015; Kindt, Kleinjan, Janssens, & Scholte, 2014; Patton et al., 2006; Perry et al., 2014; Possel, Horn, Groen, & Hautzinger, 2004; Sawyer et al., 2010). Fewer reported studies have measured the effect of such an intervention on externalising problems such as hyperactivity, conduct problems and total difficulties (Fitzpatrick et al., 2009, 2013) or composite scores of externalising problems (Cutuli et al., 2013; Lowry-Webster, Barrett, & Lock, 2003; Petersen, Leffert, Graham, Alwin, & Ding, 1997; Pössel, Seemann, & Hautzinger, 2008; Roberts et al., 2010), with the large majority reporting significant positive results on at least one outcome (Cutuli et al., 2013; Fitzpatrick et al., 2013; Lowry-Webster et al., 2003; Petersen et al., 1997; Pössel et al., 2008; Roberts et al., 2010).

Further, despite evidence that internalising and externalising problems differ by gender in adolescents (Dray et al., 2016; Lawrence et al., 2015; Mellor, 2005; Muris, Meesters, & van den Berg, 2003; Rescorla et al., 2007), trials that have assessed the effect of protective factor interventions by gender have variably reported either differential effect by gender on at least one outcome (Calear et al., 2009; Lock & Barrett, 2003; Petersen et al., 1997; Pössel et al., 2008) or no differential effects (Araya et al., 2013; Buttigieg et al., 2015; Chaplin et al., 2006; Horowitz et al., 2007; Kindt et al., 2014; Merry et al., 2004; Roberts et al., 2010; Sawyer et al., 2010; Tak, Lichtwarck-Aschoff, Gillham, Van Zundert, & Engels, 2016; Tomba et al., 2010; Trudeau, Spoth, Randall, & Azevedo, 2007).

Additionally, the large majority of trials that have assessed the effect of universal, school-based protective factor interventions on mental health outcomes in adolescents have included implementation of a manualised resilience-focussed program into the school curriculum. Whilst such an approach lends itself to evaluation of intervention efficacy under tightly controlled research conditions, a key area of challenge to policymakers is the availability of evidence regarding the effectiveness of programs when delivered by schools in a manner that is tailored to their local circumstances (Wolpert et al., 2015). Related reviews of challenges in implementation science note: the need for further research adopting approaches that combine the use of high quality study designs with intervention designs that are tailored to reflect local and real-world operational environments such as schools; aid community capacity to implement and sustain complex programs; and support local ownership of such approaches (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; McCall, 2009).

Pragmatic intervention trials – defined as research trials designed to test the effectiveness of an approach in 'real world' conditions (Thorpe et al., 2009) - typically adopt an approach that gives flexibility to participants to select elements of care or programs to implement which best meet their individual or local needs (Hawkins, Oesterle, Brown, Abbott, & Catalano, 2014; Spoth & Greenberg, 2005; Thorpe et al., 2009; Wolpert et al., 2015). For example, Promoting School-Community-University