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The effectiveness of the Penn Resiliency Programme (PRP) and its adapted versions in reducing depression and anxiety and improving explanatory style: A systematic review and meta-analysis

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ABSTRACT

Mental health problems in children can be precursors of psychosocial problems in adulthood. The aim of this study is to assess the effectiveness of the universal application of a resilience intervention (PRP and derivatives), which has been proposed for large scale roll-out. Electronic databases were searched for published randomized controlled trials of PRP and derivatives to prevent depression and anxiety and improve explanatory style in students aged 8–17 years. Studies were meta-analysed and effect sizes with confidence intervals were calculated. The Quality Assessment Tool for Quantitative Studies of the Effective Public Health Practice Project was used to determine the confidence in the effect estimates. Nine trials from Australia, the Netherlands and USA met the inclusion criteria. No evidence of PRP in reducing depression or anxiety and improving explanatory style was found. The large scale roll-out of PRP cannot be recommended. The content and structure of universal PRP should be re-considered.

Mental health disorders affect nearly 20% of children and adolescents worldwide (Kieling et al., 2011) and they are associated with marginalization, later psychosocial impairments, poor educational outcomes (Woodward & Fergusson, 2001), chronic diseases and health-risk behaviours (Kessler, Avenevoli, & Ries Merikangas, 2001; WHO, 2005). Half of the adult mental disorders in total will have emerged by the age of 14 (Merikangas et al., 2010), rendering adolescence the riskiest period for developing mental health difficulties (P. B. Jones, 2013). Schools provide a pivotal environment for children's psychological development, fostering the large scale roll-out of mental health promotion programmes (Fazel, Patel, Thomas, & Tol, 2014).

Universal, school-based programmes target whole groups of children regardless of their predisposition or risk to mental problems (Offord, Kraemer, Kazdin, Jensen, & Harrington, 1998). Their scope ranges from mental illness prevention to mental health promotion and social skills' configuration (Arbesman, Bazyk, & Nochajski, 2013; Enns et al., 2016). A variety of outcomes has been assessed, such as stress management, social-emotional-learning and coping skills (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Kraag, Zeegers, Kok, Hosman, & Abu-Saad, 2006), academic competence and mental health functioning (Hoagwood et al., 2007), anxiety (Fisak, Richard, & Mann, 2011; Neil & Christensen, 2009), and depression (Calear & Christensen, 2010; Horowitz & Garber, 2006; Merry et al., 2012; Stice, Shaw, Bohon, Marti, & Rohde, 2009). Various

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implementation types (school-based, multi-site and ecological) have been adopted, while different stakeholders (mental health professionals and school personnel) have led their administration. Most of the programmes are directed to students with an age range from four to nineteen years, with duration ranging from two to five months. The majority of the programmes are based on the principles of Cognitive Behavioural Theory or Interpersonal Therapy.

Universal, school-based, depression prevention programmes have shown promising effects in reducing depression. A recent meta-analysis (Merry et al., 2012) reported a small but significant effect for these programmes in reducing depressive symptoms with effects remaining for nine months. Individual studies of these programmes however, have reported mixed results (Horowitz, Garber, Ciesla, Young, & Mufson, 2007; Sawyer et al., 2010; Sheffield et al., 2006; Shochet et al., 2001; Spence, Sheffield, & Donovan, 2003; Tomyn, Fuller-Tyszkiewicz, Richardson, & Colla, 2016). In the light of the superior effects of targeted interventions, it has been suggested that further research on universal interventions may not be warranted (Stice et al., 2009). One reason for the under-developed evidence-base for universal applications of depression-prevention programmes might be the poorly understood mechanisms underpinning the relationship between individual protective factors and depression (Thapar, Collishaw, Pine, & Thapar, 2012). It has been suggested therefore that focus should be tailored to investigate the components of a successful programme, which follows a specific therapeutic approach, in order to identify those factors which renders this programme effective (Calear & Christensen, 2010; Hetrick, Cox, & Merry, 2015).

A seminal programme that has been widely implemented both as universal and targeted intervention is the Penn Resiliency Programme (PRP) (Gillham, Brunwasser, & Freres, 2008). PRP is a 12-session programme applicable to children aged 10–14 years with its duration ranging from 90 to 120 min per session. PRP is based on the tenets of Beck's Cognitive Theory (Beck, 1979) and the ABC model of Ellis (1962), consisting of an intra-personal cognitive component and an interpersonal social-problem solving component (Gillham et al., 2008). Briefly, cognitive component of PRP targets cognitive restructuring, students' explanatory style, and maladaptive coping strategies (Gillham et al., 2008). The problem-solving component of PRP targets seven individual skills, namely: Assertiveness, negotiation, relaxation, procrastination, social skills, decision-making, and problem-solving (Gillham et al., 2008). The aim of PRP is: a) to target the link between maladaptive cognitions and emotional-behavioural outcomes by challenging students' stable explanatory style and b) to promote goal-setting by combating passive responses (Gillham & Reivich, 2004). PRP has been administered by school personnel and mental health professionals (MHPs), including scenario-based and homework activities.

The content of PRP, embedded in other universal school-based programmes, has been implemented in culturally diverse populations. School-based programmes, such as 'Op Volle Kracht' (OVK) (Tak et al., 2012), Optimism Lifeskills Programme (OLP) (Quayle, Dziurawiec, Roberts, Kane, & Ebsworthy, 2001) and Aussie Optimism Programme (AOP) (Roberts, 2006), plus AOP's derivatives, namely Positive Thinking Programme (PTP) (Rooney et al., 2006) and AOP-PTS (Rooney, Hassan, Kane, Roberts, & Nesa, 2013), are conceptually based on PRP following similar methods. OVK is a school-based, depression-prevention programme of 16 sessions of 50 min each, which has been delivered either as targeted or universal and it is applicable to adolescents aged 12–14 years (Tak et al., 2012). OVK shares the same basis as PRP (Beck, 1979; Ellis, 1962), after being culturally modified in order to be applicable to Dutch teenagers (Tak et al., 2012). In OVK, cognitive distortions, explanatory style, coping and social skills are targeted, while OVK has been administered by school personnel and MHPs.

OLP (Quayle et al., 2001) is an identical version of the Penn Prevention Programme (Jaycox, Reivich, Gillham, & Seligman, 1994) applicable to Australian teens aged 10–13 years. It consists of 8 weekly sessions of 80-min each and it is based on Cognitive-Behavioural Therapy (CBT) and ABC model, including an attribution style training (Seligman et al., 1988). OLP targets students' interpretations about daily problems, coping strategies and social skills. AOP consists of 20 weekly sessions of 60-min each and it is applicable to students aged 11–13 years (Roberts, 2006). AOP is based on CBT, targeting students' negative explanatory style, interpersonal skills and thinking style and it has been delivered by school personnel (Roberts et al., 2010). PTP (Rooney et al., 2006) consists of 8 weekly sessions of 60-min each and it is based on AOP, with its content to have been modified in order to capture the needs of younger individuals. Based on CBT, the chain between beliefs and emotional outcomes, plus explanatory style, are targeted. AOP-PTS (Rooney et al., 2013) consists of 10 sessions of 1hr each, targeting cognitive and behavioural skills.

Why this review is important

In the only existing meta-analytic review, PRP was found effective in reducing depressive symptoms (Brunwasser, Gillham, & Kim, 2009). Drawing data from both randomised and non-randomised studies of universal and targeted approaches, 17 studies with a total sample size of 2498 individuals and age range of 8–18 years were identified. A significant mean effect size (ES), $d = 0.11$, [0.01, 0.20], comparing PRP to non-intervention control, was found at post-intervention. The ESs were significant at 6–8 months and 12-month follow-up with $d = 0.21$, [0.11, 0.31] and $d = 0.20$, [0.09, 0.32] respectively. The ESs became non-significant at post intervention, when active-controls were imported in the analysis, $d = -0.02$, [−0.19, 0.14] and 6–8-month, $d = 0$, [−0.18, 0.19], and after removing non-randomized studies, $d = 0.09$, [−0.02, 0.19]. PRP can produce small, significant effects in reducing depression when it is compared against non-intervention. Due to its wide implementation, PRP has been proposed as a potential candidate for large scale roll-out (Hetrick et al., 2015); however, in the presence of inconsistent findings, more robust evidence is needed (Brunwasser et al., 2009).

The need to explore whether PRP's effects are meaningful in reducing anxiety symptoms has been reported (Brunwasser et al., 2009). School-based programmes have been found effective in reducing anxiety (Neil & Christensen, 2009) and given the increase in prevalence of sub-clinical anxiety symptoms in youth (Fink et al., 2015), anxiety was assessed as secondary