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

Julia Dray [a, c, d, *], Jenny Bowman [a, d], Elizabeth Campbell [b, c, d], Megan Freund [b, d], Rebecca Hodder [b, c, d], Luke Wolfenden [b, c, d], Jody Richards [a], Catherine Leane [c], Sue Green [c, d], Christophe Lecathelinais [b, c], Christopher Oldmeadow [b, d], John Attia [b, d], Karen Gillham [c, d], John Wiggers [b, c, d]

[a] Faculty of Science and IT, School of Psychology, University of Newcastle, Callaghan, NSW 2308, Australia
[b] Faculty of Health and Medicine, School of Medicine and Public Health, University of Newcastle, Callaghan, NSW 2308, Australia
[c] Hunter New England Population Health Research Group, Hunter New England Local Health District, Wallsend, NSW 2287, Australia
[d] Hunter Medical Research Institute, New Lambton Heights, NSW 2310, Australia

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).

© 2017 The Authors. Published by Elsevier Ltd on behalf of The Foundation for Professionals in Services for Adolescents. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).

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

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,

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

Partnerships to Enhance Resilience (PROSPER) is a delivery system utilising a community-university partnership model to foster the uptake and implementation of locally selected evidence-based programs relating to internal and external protective factors in adolescents (Spoth et al., 2015). Evaluations of the PROSPER trial indicate significant positive intervention effects for substance use outcomes (such as tobacco, alcohol and illicit substance initiation and use)(Spoth et al., 2007, 2013), conduct problems (Spoth et al., 2015), and a range of outcomes related to internal and external protective factors (such as problem solving, parent-child attachment and family environment)(Redmond et al., 2009; Spoth & Greenberg, 2005). No further mental health problem outcomes (e.g. internalising problems or total difficulties) were assessed across the PROSPER trials.

To address limitations of past studies, the present study was conducted to evaluate the effectiveness of a universal, school-based, pragmatic intervention targeting resilience protective factors in reducing four mental health problem outcomes (total SDQ; internalising problems; externalising problems; and prosocial behaviour) in adolescents. The secondary study aim was to evaluate the effectiveness of the intervention in improving internal and external resilience protective factors, and to investigate differential intervention effects by gender and baseline mental health problem levels for primary outcomes. In addition to student outcome data, process data to describe the extent of intervention implementation were collected and results of this are described.

Methods

Study design, setting and sample

A cluster randomised controlled trial, was conducted in 32 secondary schools within the Hunter New England region of New South Wales (NSW), Australia. The study was approved by relevant ethics committees (HNEH: Ref no. 09/11/18/4.01; UoN: Ref no. H-2010-0029; and the AHMRC: Ref no. 776/11) and prospectively registered (ANZCTR: Ref no. ACTRN12611000606987). Full details of the trial methodology have been described elsewhere (Dray et al., 2014).

Secondary schools

School eligibility criteria were: at least 400 student enrolments (Grades 7 to 12); enrolments in Grades 7 to 10 (typically aged 12—16 years); and located within a socio-economically disadvantaged Local Government Area (LGA; school postcode in a LGA with a score of <1000 using the Socio-Economic Indexes for Areas (SEIFA)) (Trewin, 2003). A national database of Australian schools (Australian Curriculum Assessment and Reporting Authority, 2010) was used to identify 172 Government and Catholic secondary schools in the study area, of which 47 met the eligibility criteria. The 47 eligible schools were ordered by an independent statistician using a random number function, and approached in that order until 32 consented.

Randomisation of schools

Consenting schools were stratified by school size (medium-size 400 to 800 students, or large schools >800) and by engagement in a national government funding initiative directed at schools in disadvantaged areas (yes/no) (NSW Department of Education and Communities, 2011). Schools were then randomised in Microsoft Excel using a random number function in a 20:12 block design ratio (20 intervention; 12 control) prior to baseline data collection. Schools, enrolled students and parents of students were not blind to treatment allocation.

Student sample

Students were eligible to participate if they were in Grade 7 (first year of secondary school) in 2011. Signed parental consent for student participation was obtained through mailing of study information packs and consent forms. Student outcome assessments were undertaken via online surveys conducted during class time, with students in Grade 7 at baseline (August to November 2011) and in Grade 10 at follow-up (July to November 2014).

School staff

Selected staff from each participating school (deputy principal, head teachers for student welfare and five key subject areas, and the Aboriginal Education Coordinator or other nominated Aboriginal staff member) were invited to complete a survey at follow-up.

Intervention

An intervention was developed to increase the provision of universal strategies targeting multiple internal and external resilience protective factors in intervention schools during Grades 8 to 10, from 2012 to 2014. The intervention involved a framework of sixteen intervention strategies across the three Health Promoting Schools domains (World Health Organisation, 1991) (see Table 1). Each strategy was designed to address one or more internal (cooperation/communication, empathy, goals/aspirations, problem solving, self-awareness, self-efficacy) or external resilience protective factor (school support, school meaningful participation, peer caring relationships). A pragmatic intervention approach was used (Thorpe et al., 2009). Intervention schools were asked to meet the same prescribed set of strategies in Table 1, however schools were given the flexibility to select which specific programs or resources to implement to address each of the strategies. Additionally, the order and manner by which these were implemented within each intervention school varied to align to the context and needs

Table 1
Intervention strategies and implementation support strategies.

Intervention strategies by Health Promoting Schools Domain

Curriculum, teaching and learning

1. Age-appropriate lessons (9 h) on protective factors across a minimum of three of the following key learning area's (KLAs): English; Math; Science; History and Geography, and/or; Personal Development, Health and Physical Education (PDHPE) (Board of Studies Teaching and Educational Standards NSW, 2016). For example, MindMatters (MindMatters, 2000; Wyn et al., 2000) or school-developed curriculum resources [a,c]
2. Non-curriculum programs (9 h) targeting protective factors outside the classroom (e.g. the Resourceful Adolescent Program (Queensland University of Technology, 2013)) [a,b]
3. Additional program targeting protective factors for Aboriginal students [a,b,c]

Ethos and Environment

4. Rewards and recognition programs [a,b]
5. Peer support or peer mentoring programs [a,b]
6. Anti-bullying programs [a,b]
7. Empowerment/leadership programs [a,b]
8. Additional empowerment/leadership/mentoring programs for Aboriginal students [a,b,c]
9. Aboriginal cultural awareness strategies [a,b,c]

Partnerships and Services

10. Promotion and engagement of local community organisations, groups and clubs in the school (e.g. charity organisations) [a,c]
11. Additional or enhanced consultation activities with Aboriginal community groups [a,b,f]
12. Promotion and engagement of health, community and youth services in the school [a,b,c]
13. Additional or enhanced Aboriginal community organisations promoted or engaged [a,b,f]
14. Referral pathways to health, community and youth services developed and promoted [a,b,c]
15. Strategies to increase parental involvement in school (e.g. school events, and effective parent communication strategies) [b,c]
16. Information regarding student protective factors provided to parents via school newsletter. [a,b,c]

Implementation support strategies

1. Engagement with school community including presentations at school staff meetings regarding planned intervention [d]
2. Embedded support staff:

   ○ School intervention officer one day a week to support program implementation

   ○ Project coordinator to liaise with school sectors and support school intervention officers [e]
3. School intervention team formed (new team or re-alignment of existing team, inclusive of school intervention officer and school executive member) to implement intervention
4. Structured planning process to prioritize and select appropriate resources/programs:

   ○ Needs assessment of student protective factors (when study sample in Grade 7)

   ○ Two school community planning workshops and one strategy review workshop [e]

   ○ School plan to address intervention strategies endorsed by the school executive
5. Intervention implementation guide that described the intervention, planning process, available resources and programs, tools and templates for intervention implementation.
6. Staff mental health training (minimum of 1 h per school during staff meetings)
7. AUD $2000 per year each for:
   ○ Teacher release time for intervention implementation or professional development
   ○ Strategies specifically for Aboriginal students [c]
8. Feedback reports regarding student substance use, protective factors (following baseline and Grade 9) and intervention implementation (termly) [e]
9. An Aboriginal Cultural Steering Group was formed comprising of Aboriginal staff from local Aboriginal community organisations and Government Departments to provide Aboriginal cultural advice and direction regarding the study design, implementation, evaluation and dissemination

---

NB. Following publication of the trial protocols (Dray et al., 2014; Hodder et al., 2012) and based upon advice received from Aboriginal Cultural Steering Group intervention strategies 3,8,11,13 were added.
[a] To target internal protective factors.
[b] To target external protective factors.
[c] Implemented in Years 2 and 3 only.
[d] Year 1 only.
[e] Years 1 and 2 only.
[f] Year 3 only.

of each school community. A stepped approach was used whereby the number of strategies to implement in each school year increased starting at two strategies in 2012; 14 in 2013; and 16 in 2014 (Table 1).

Curriculum, teaching and learning strategies focussed on the provision of resilience-focussed content inside and outside the classroom. Schools were required to implement 9 h of resilience-focussed content in a minimum of three of the following key learning area's (KLAs): English; Math; Science; History and Geography, or; Personal Development, Health and Physical Education (PDHPE) (Board of Studies Teaching and Educational Standards NSW, 2016). Head teachers of each subject area reviewed the existing programmed curriculum content and embedded content targeting resilience protective factors where it was contextually relevant. In addition, schools were required to embed a further 9 h of content targeting resilience protective factors into school activities (e.g. school assemblies, camps, welfare days). Intervention school teachers were provided with a one-day MindMatters training workshop in promoting the development of social and emotional skills during lessons and

improving student engagement in learning, as well as hard copies of MindMatters (BeyondBlue and the Department of Health of the Australian Government, 2016) and SenseAbility Resource Kits (BeyondBlue, 2016). To monitor the implementation of resilience-focussed content, copies of related learning units or activities, inclusive of details regarding time to complete units or activities, were obtained from teachers by each assigned intervention support officer, and collated by a member of the research team.

Based on a need suggested by previous evaluations of school-based interventions (Bond, Glover, Godfrey, Butler, & Patton, 2001; Hodgson, Abbasi, & Clarkson, 1996; MindMatters, 2000; Wyn, Cahill, Holdsworth, Rowling, & Carson, 2000), schools were provided with intervention implementation support including an embedded school intervention officer (Table 1). School intervention officers had a graduate or masters level qualification in a health, psychology or education related degree, or experience in a school setting. Aspects of the role of the school intervention officers included providing ongoing monitoring of implementation and performance feedback to schools. Additionally, to encourage ownership and leadership in the implementation of the intervention within schools, a school core team was established (Wyn et al., 2000). In each intervention school, core team members included the allocated school intervention officer, student leaders, school staff including the school liaison officer and a minimum of one executive school staff member (e.g. principal, deputy principal and/or head of faculty). School core teams held regular meetings (on average twice per school Term; 4 Terms per year) during which they received proactive support from the allocated school intervention officer to: audit school implementation progress and current challenges within their school community, and; develop annual action plans for implementation of locally chosen program content or strategies that were tailored to their school community and that addressed each of the prescribed intervention strategies. A standard agenda was available to schools for core team meetings, and school intervention officers facilitated team meetings. Additionally school intervention officers and intervention school staff were provided with opportunities to complete courses in Mental Health First Aid (Mental Health First Aid, 2016) or MindMatters (BeyondBlue and the Department of Health of the Australian Government, 2016).

Control group

Control schools implemented usual curricula and were not provided intervention resources or support, with the exception of a report of student resilience protective factor results following the baseline survey. In New South Wales, Australia, usual curricula in high school involves a minimal set of key learning areas: Math; English; Science; Personal Development, Health and Physical Education (PDHPE); and Geography and History (Board of Studies Teaching and Educational Standards NSW, 2016).

Measures

Student characteristics

The survey contained self-report items relating to student age, gender, Aboriginal and/or Torres Strait Islander status, ethnicity, non-English speaking background and residential postcode.

Primary outcome: mental health problems

Mental health problems were measured using the youth self-report version of the Strengths and Difficulties Questionnaire (SDQ) (R. Goodman, 1997; R. Goodman, Meltzer, & Bailey, 1998) total difficulties score (total SDQ), and scores of the three SDQ subscales (A. Goodman & Goodman, 2009; A. Goodman, Lamping, & Ploubidis, 2010): internalising problems, externalising problems, and pro-social behaviour (4 primary outcomes). Student scores from the individual items within each of the three SDQ subscales were summed to calculate a score for each subscale. The internalising and externalising problem scores had a possible range of 0–20, and the prosocial behaviour score a possible range of 0–10. The internalising and externalising problems scores were summed to determine a total difficulties score (total SDQ: range 0–40).

Secondary outcomes: student internal and external protective factors

Student internal and external resilience protective factors (also termed 'internal and environmental resilience assets', Hanson & Kim, 2007) were measured using the Resilience and Youth Development Module of the California Healthy Kids Survey (California Department of Education, 2013; WestEd, 2013). Items for the six internal and three of the eight external protective factor subscales were selected for analysis as they were most congruent with the intervention content (Supplementary Table 1). Response options for the survey items were '1: Never true', '2: True some of the time', '3: True most of the time', and '4: True all of the time'. Scores for student protective factor subscales were calculated by summing item responses within each subscale. Scores from each of the internal subscales were then averaged to calculate an aggregate internal protective factor score, and likewise to calculate an aggregate external protective factor score.

As well as collecting data on mental health problems and internal and external protective factors, the survey included items regarding adolescent health behaviours such as substance use, physical activity, sexual health (Grade 10 students only), and bullying. The trial findings regarding these outcomes are reported separately.

Implementation of strategies targeting protective factors

School intervention support officers reviewed school documents and recorded delivery of intervention strategies in intervention schools on a monthly basis. Telephone-based structured interviews regarding implementation of resilience protective factor strategies during the final year of the intervention were conducted at follow-up with selected staff from both intervention and control schools, through an external contracted research agency. School staff from intervention schools were also asked about their level of engagement with the intervention in the final year.

Sample size

Based on participation rates of approximately 80% in previous research (Hodder et al., 2011; Patton et al., 2006), and an anticipated 25% attrition rate from baseline (Grade 7, 2011) to follow-up (Grade 10, 2014), it was estimated that a sample of 1360 Grade 7 and 1020 Grade 10 students in the control group, and 2270 Grade 7 and 1700 Grade 10 students in the intervention group, with a cluster size of approximately 85 students per school could be achieved. Accounting for a one-unit increase in total SDQ scores for control students (based on Australian norms indicating approximately a one-unit increase in score with age) (Mellor, 2005), 80% power, a significance level of 5%, and an intra-cluster correlation coefficient of 0.037 (Aberdeen University: Health Services Research Unit, 2011; Chisholm, Patterson, Torgerson, Turner, & Birchwood, 2012), it was expected that a conservative estimate of a two-point reduction in total SDQ scores for intervention group students would be detectable (Mathai, Anderson, & Bourne, 2003).

Statistical analysis

All analyses were conducted using SAS Version 9.4 (SAS Institute Inc., 2013) and assumed a statistical significance level of $p \leq 0.05$.

Student characteristics

Descriptive statistics were employed to examine consent, participation and attrition rates, and student demographic characteristics. Socio-economic status (Trewin, 2003) and remoteness of residential location (Department of Health and Aged Care, 2001) were calculated from student reported residential postcode. Logistic regression analyses within a generalised estimating equation framework were used to compare students who completed both the baseline and follow-up surveys, and students lost at follow up, on baseline demographic characteristics (gender, Aboriginal and/or Torres Strait Islander status, socio-economic disadvantage, and remoteness of residential location), four SDQ scores, and internal and external resilience protective factor scores.

Mental health problems

The analysis was conducted on the cohort of students that participated in both baseline and follow-up surveys and who answered all 25 SDQ items at follow-up. All four primary outcomes were treated as continuous variables, with comparisons between intervention and control students at follow-up undertaken using separate linear mixed models. The models included a fixed effect for treatment group (intervention vs. control), a random effect for school to account for clustering of responses within schools, and fixed effects for prognostic variables (age, gender, school size, school type, Aboriginal status, remoteness of residential location, socio-economic status, ethnicity, and non-English speaking background). The adjusted difference between treatment groups for the mean of each outcome are presented with 95% Wald confidence intervals. P-values for the difference between intervention and control schools on each outcome were derived from Wald tests. Intra-class correlations are also presented as the between-school random effect variance divided by the total variance.

Additionally, a sensitivity analysis was undertaken for all primary outcomes using intention-to-treat (ITT) principles, whereby multiple imputation was used to assess sensitivity of the results to missing data under the missing at random (MAR) assumption for students that were lost to follow-up or moved between intervention and control schools. The method of chained regression equations was used, imputing 10 data sets separately for each follow-up SDQ score by treatment status, and pooling the results using Rubin's method (Rubin, 1987). The multiple imputation analysis was also adjusted for prognostic variables (previously listed above).

Subgroup analyses

Exploratory analyses, specified a priori (Dray et al., 2014) were undertaken to assess differential intervention effect on the primary outcomes for gender subgroups. An interaction term (treatment x gender) was added to the above estimated regression models. Additional post hoc analyses were conducted to further explore differential effect of intervention by baseline level of mental health problems. An interaction term (treatment x baseline SDQ level) was added to the above estimated regression models. For this analysis, baseline SDQ scores were treated as categorical (see Supplementary Table 2 for cut points utilised).

Student internal and external protective factors

To assess impact of the intervention on student resilience protective factor scores, comparisons between groups at follow-up were undertaken using linear mixed models. The models included a fixed effect for treatment group (intervention vs. control), and a random effect for school to account for clustering of responses within schools. Models were adjusted for the prognostic variables (as per primary outcome analysis).

Implementation of strategies targeting protective factors

Descriptive statistics were used to summarise the extent of intervention strategy implementation in intervention schools for each intervention year according to project records. Chi-square and *t*-test analyses were used to assess difference between intervention and control schools in the delivery of strategies in the third year of intervention. Response options for intervention school engagement in the final year of the intervention were dichotomised (moderately/very or unsure/not at all/somewhat).

Results

Sample

Forty-four of the 47 eligible schools were approached to provide the quota of 32 schools (28 government, 4 Catholic; 21 medium size, 11 large size; 73% school consent rate). No schools withdrew from the study following allocation (see Fig. 1). Parental consent was obtained for 3530 Grade 7 students (76.9% of enrolled students), of whom 3115 participated in the student survey at baseline (88.2% of students with parental consent; 67.9% of the total enrolled student population). Follow-up data were collected from 2149 of the students who completed the baseline survey (retention rate of 69.0%; intervention 67.3%, control 71.6%) with no differential loss to follow-up between intervention and control groups ($p = 0.1$). Reasons for lost to follow-up were: students no longer attending school ($n = 652$); absent from school on follow-up survey days ($n = 207$), or; unknown reason for currently enrolled students ($n = 137$). Students who did not complete all 25 SDQ items at follow-up ($n = 14$) or moved between schools during the intervention period ($n = 30$) were excluded from the analyses, resulting in a cohort of 2105 students for analysis. All 3115 students who completed the baseline survey were included in the intention-to-treat sensitivity analyses.

Baseline characteristics of students who completed the baseline student survey are presented in Table 2. Students lost to follow-up compared to students who remained in the cohort (completed both baseline and follow-up data collection) were significantly more likely to have a higher mean total SDQ score (14.9 vs. cohort: 12.2, $p < 0.0001$), externalising problems score (8.4 vs. cohort: 6.8, $p < 0.0001$), and internalising problems score (6.5 vs cohort: 5.4, $p < 0.0001$); a lower mean prosocial behaviour score (7.1 vs. cohort: 7.4, $p < 0.01$ respectively); and to have lower mean scores for internal (2.9 vs. 3.1, $p < 0.0001$) and external (2.9 vs. 3.0, $p < 0.0001$) resilience protective factors at baseline. Students who were lost to follow up were also more likely to be Aboriginal and/or Torres Strait Islander (18.06% compared to 10.18% respectively, $p < 0.0001$).

Mental health problems

Mean scores and standard deviations for the total SDQ and each of the three subscales at follow-up are displayed in Table 3 by treatment group. There was no significant difference between intervention and control groups for the outcomes of total SDQ, internalising problems and prosocial behaviour. There was a significant difference for the outcome of externalising problems in favour of the control group, though the magnitude of effect was small ($\beta = 0.43$, 95% CI: 0.04 to 0.83, $p = 0.02$). This pattern of results remained unchanged for the intention-to-treat sensitivity analysis (Table 3).

Subgroup analyses

There was no differential effect by gender for any of the primary outcome measures (Supplementary Table 3). Subgroup analyses showed differential effect in favour of the control group for students with very high scores at baseline for total SDQ ($\beta = 2.62$, 95% CI: 0.85 to 4.39, $p = 0.02$), and externalising problems ($\beta = 4.79$, 95% CI: 2.41 to 7.16, $p = 0.003$) only (Supplementary Table 4).

Student internal and external protective factors

There was no significant difference between intervention and control students for mean student internal and external resilience protective factor scores (Table 3).

Intervention strategy implementation

A total of 232 of the 256 school staff identified by school principals completed the telephone survey (91%). In each individual year of the intervention, 18 or 19 of 20 intervention schools were recorded to have implemented programs or resources in each strategy area relevant to that year. Project records demonstrated that 12 of 20 intervention schools
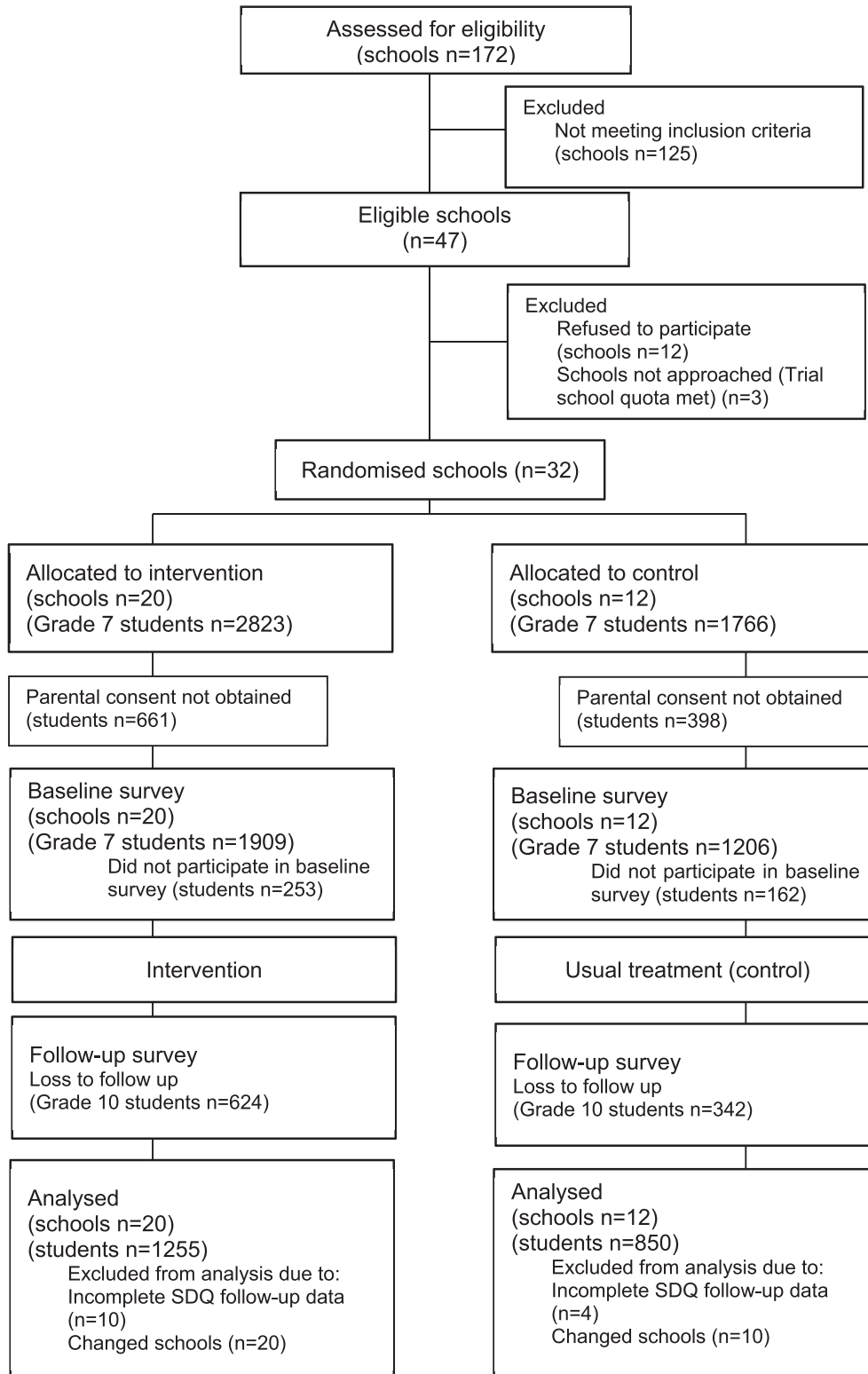
```
                    ┌─────────────────────────────┐
                    │   Assessed for eligibility   │
                    │      (schools n=172)         │
                    └─────────────────────────────┘
                                 │
                                 │        ┌──────────────────────────────┐
                                 ├────────│ Excluded                     │
                                 │        │   Not meeting inclusion      │
                                 │        │   criteria                   │
                                 │        │   (schools n=125)            │
                                 │        └──────────────────────────────┘
                    ┌─────────────────────────────┐
                    │      Eligible schools        │
                    │          (n=47)              │
                    └─────────────────────────────┘
                                 │
                                 │        ┌──────────────────────────────┐
                                 ├────────│ Excluded                     │
                                 │        │   Refused to participate     │
                                 │        │   (schools n=12)             │
                                 │        │   Schools not approached     │
                                 │        │   (Trial school quota met)   │
                                 │        │   (n=3)                      │
                                 │        └──────────────────────────────┘
                    ┌─────────────────────────────┐
                    │  Randomised schools (n=32)   │
                    └─────────────────────────────┘
```

Allocated to intervention (schools n=20) (Grade 7 students n=2823)	Allocated to control (schools n=12) (Grade 7 students n=1766)
Parental consent not obtained (students n=661)	Parental consent not obtained (students n=398)
Baseline survey (schools n=20) (Grade 7 students n=1909) Did not participate in baseline survey (students n=253)	Baseline survey (schools n=12) (Grade 7 students n=1206) Did not participate in baseline survey (students n=162)
Intervention	Usual treatment (control)
Follow-up survey Loss to follow up (Grade 10 students n=624)	Follow-up survey Loss to follow up (Grade 10 students n=342)
Analysed (schools n=20) (students n=1255) Excluded from analysis due to: Incomplete SDQ follow-up data (n=10) Changed schools (n=20)	Analysed (schools n=12) (students n=850) Excluded from analysis due to: Incomplete SDQ follow-up data (n=4) Changed schools (n=10)

Fig. 1. Study flow diagram.

Table 2

Descriptive statistics of baseline survey participant characteristics by treatment group (N = 3115).

Variable	Control (N = 1206)	Intervention (N = 1909)
	n(%)	n (%)
Total students		
Gender		
Male	607 (50)	950 (50)
Female	599 (50)	959 (50)
Age		
12 and younger	471 (39)	804 (42)
13	714 (59)	1079 (57)
14 or older	21 (2)	26 (1)
Aboriginality		
Aboriginal and/or Torres Strait Islander[a]	151 (13)	245 (13)
Socio-economic Disadvantage (SEIFA)[b]		
Low < 990 (most disadvantaged)	716 (59)	1056 (55)
High ≥990 (least disadvantaged)	488 (41)	847 (45)
Remoteness (ARIA)[c]		
Major Cities Australia	703 (58)	809 (43)
Inner Regional Australia	370 (31)	921 (48)
Outer Regional/Remote	132 (11)	174 (9)
School size		
Medium	549 (46)	988 (52)
Large	657 (54)	921 (48)
Ethnicity		
Other ethnic, cultural or national origin	95 (8)	235(12)
Non-English speaking background		
Speak language other than English	57 (5)	119 (6)
Mental health problems[d]	Mean (SD)	Mean (SD)
Total SDQ	12.4 (6.3)	13.5 (6.6)
Internalising SDQ	5.4 (3.5)	6.0 (3.7)
Externalising SDQ	6.9 (3.9)	7.5 (4.0)
Prosocial behaviour	7.3 (1.9)	7.2 (2.0)
Protective factor score		
Internal[e]	3.0 (0.5)	3.0 (0.5)
External[f]	3.0 (0.5)	2.9 (0.6)

[a] N = 3111, missing for 4 students.
[b] N = 3107, SES could not be calculated for 8 students.
[c] N = 3109, remoteness could not be calculated for 6 students.
[d] N = 2433 (control N = 943; intervention N = 1490). A reduced number of students completed the SDQ at baseline due to a delay in receiving required approvals for administration of this measure.
[e] 17 missing due to non-completion.
[f] 26 missing due to non-completion.

Table 3

Adjusted intervention vs. control group outcomes at follow-up.

Outcome	Control (N = 850)	Intervention (N = 1255)	Intervention vs. Control (Matched Cohort N = 2096)[a]		Intervention vs. Control (ITT Population N = 3115)		ICC
	Mean (SD)	Mean (SD)	Mean diff (95% CI)	p	Mean diff (95% CI)	p	
Primary outcomes							
Mental health problems							
Total SDQ	13.58 (6.49)	14.04 (6.80)	0.47 (−0.41, 1.35)	0.27	0.43 (−0.23, 1.08)	0.20	0.16
Internalising	6.74 (3.83)	6.88 (3.98)	0.05 (−0.54, 0.63)	0.87	0.10 (−0.37, 0.58)	0.66	0.09
Externalising	6.84 (3.68)	7.16 (3.91)	0.43 (0.04, 0.83)	0.02	0.42 (0.04, 0.80)	0.03	0.02
Prosocial behaviour	6.99 (2.03)	6.89 (2.10)	−0.08 (−0.35, 0.19)	0.53	−0.08 (−0.29, 0.12)	0.43	0.01
Secondary Outcomes							
Protective factor scores							
Internal	3.02 (0.48)	3.01 (0.49)	−0.01 (−0.07, 0.06)	0.81	−	−	0.001
External	2.93 (0.52)	2.92 (0.54)	−0.01 (−0.08, 0.07)	0.87	−	−	0.001

[a] N = 2096 due to missing data.

implemented programs or resources to address each intervention strategy every year (see Supplementary Table 5 for examples of specific programs implemented). In the final year of the study, comparisons indicated that intervention schools were more likely than control schools to have included 9 h of resilience instruction across at least two school subjects in any Grade (intervention 88% vs. control 36%, p < 0.01), but not in Grade 10 (intervention 88% vs. control 55%, p = 0.08). A higher proportion of Head Teachers at intervention schools reported using resilience resources within the curriculum in any Grade

than control schools (75% and 49% respectively, p < 0.01), and the mean number of resilience resources used outside of the classroom was higher in intervention compared with control schools (3.1 and 1.2 respectively, p < 0.01). However, in relation to the remaining 15 strategies, there were no significant differences in delivery between intervention and control schools (see Table 4). Between 73% and 84% of intervention school staff reported being 'moderately' or 'very' engaged in the final year of the intervention (Aboriginal contact 73.7% (14/19); Deputy principal 84.2% (16/19); Head Teacher Welfare 83.3% (15/18); Head Teacher KLAs 76.4% (68/89)).

Discussion

This study assessed the effectiveness of a universal school-based intervention targeting protective factors for resilience in reducing mental health problems in secondary school students. At follow-up, no significant differences were found between intervention and control groups 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. No differential intervention effect on mental health outcomes was found by gender or by baseline level of mental health problems. There was no intervention effect on internal or external protective factors.

The finding of no significant effect of the intervention on total SDQ, internalising problems, and prosocial behaviour is inconsistent with some previous studies of resilience protective factor interventions with similar mental health outcomes in adolescents (Fitzpatrick et al., 2009; Lowry-Webster et al., 2003; Trudeau et al., 2007), with other previous trials indicating a positive result for at least one of these outcomes at some follow-up points (Cutuli et al., 2013; Fitzpatrick et al., 2013; Roberts et al., 2010). Additionally, the present study found a small significant difference in favour of the control group for the outcome of externalising problems. This finding is inconsistent with the limited number of previous studies that have included a composite measure of externalising problems, all of which reported null effects for this outcome (Cutuli et al., 2013; Lowry-Webster et al., 2003; Pössel et al., 2008; Roberts et al., 2010). Such a result should be interpreted with caution due to the absence of a plausible mechanism for the resilience protective factor intervention to have a negative impact on student externalising problems. Additionally, due to the small magnitude of the effect (β = 0.43), the difference is unlikely to be clinically meaningful.

There is considerable variability in the literature with respect to results of studies that have included a measure of protective factors. Consistent with the present result, many previous studies have indicated no effect for measured protective factors (Araya et al., 2013; Bond et al., 2004; Fitzpatrick et al., 2009, 2013; Melnyk et al., 2013; Possel et al., 2004; Roberts et al., 2010; Sawyer et al., 2010; Tak, Kleinjan, Lichtwarck-Aschoff, & Engels, 2014). In contrast, a number of studies have reported improvement in protective factor outcomes however such a result does not appear to align clearly with improvement in mental health outcomes, with largely null (Buttigieg et al., 2015; Leventhal et al., 2015; Rivet-Duval et al., 2011; Rose et al., 2014) or mixed results (Cardemil et al., 2007; Lock & Barrett, 2003) for mental health outcomes in these studies. Such results raise questions regarding what is necessary to positively impact student protective factors. Related research highlights the development of protective factors and skills related to resilience as a time intense process, and suggests the potential of schools as platforms for the delivery of sustained efforts to support gains made in preventative efforts supporting resilience and mental health in young people (Cowen et al., 1996).

A number of possible explanatory factors pertaining to aspects of the intervention design may account for the null effect of the study. First, whilst pragmatic intervention approaches are conducive to developing scalable and sustainable intervention approaches, non-standard and inconsistent intervention strategy implementation may contribute to such approaches being ineffective (Roberts et al., 2010), and additionally makes exact replication of the intervention difficult. Additionally, in contrast to other past pragmatic intervention trials which have included only evidence-based programs for local selection (Hawkins et al., 2014; Spoth & Greenberg, 2005; Wolpert et al., 2015), in the present trial schools were provided with a range of programs and resources to implement to address each of the intervention strategies, not all of which had a strong evidence-base and this may have further limited effectiveness. Further, the study was implemented in the context of a positive education movement in Australia (Cahill, Beadle, Farrelly, Forster, & Smith, 2014; Centre for Education Statistics and Evaluation, 2015; Urbis, 2011; Victoria State Government, 2014) which included the development of a wellbeing framework for schools by the NSW Department of Education and Communities to underpin school actions, policies and outcomes (Centre for Education Statistics and Evaluation, 2015). Consequently, concepts such as student wellbeing, social and emotional competence, positive mental health, and resilience were likely of equal focus in control schools, and as such control schools may have implemented programs and resources similar to, or the same as, those promoted to the intervention schools. Such a possibility is supported by staff interview data collected at follow-up to measure school implementation of strategies targeting protective factors; a similar level of reported implementation of the broad intervention strategies was found in both intervention and control schools, with the exception of significantly greater implementation of resilience-focussed curriculum strategies in intervention schools.

Second, previous research has identified school, peer, individual, family and community factors as important to a range of health and behaviour outcomes during adolescent development, with factors in the family domain identified as most strongly associated with mental health outcomes such as depressive symptoms (Bond et al., 2005). Similarly, previous intervention trials of this nature have identified lack of content targeting family and parent components as a possible explanatory factor towards null intervention outcomes (Roberts et al., 2010). Whilst the present intervention employed strategies that targeted a range of individual protective factors, only three external protective factors relating to school rather than family or parents

Table 4
Intervention versus control group implementation of strategies targeting protective factor comparisons in final year of intervention.

Intervention strategies by Health Promoting Schools domain	Outcome definition	Intervention group N = 20% (n/N)	Control group N = 12% (n/N)	P value
Curriculum, teaching and learning				
1. Age-appropriate lessons on individual protective factors across school subjects	≥9hrs classroom resilience instruction across more than 1 KLA (Year 10)[a]	88.2 (15/17)	54.5 (6/11)	0.08
	≥9hrs classroom resilience instruction across more than 1 KLA (Year 7−10)[a]	88.2 (15/17)	36.4 (4/11)	0.01
	Head Teachers using any resilience resource in curriculum (including MindMatters and SenseAbility)[a]	75.3 (67/89)	49.1 (27/55)	0.002
	Head Teachers using MindMatters in curriculum[a]	42.7 (38/89)	30.9 (17/55)	0.20
	Head Teachers using SenseAbility in curriculum[a]	13.5 (12/89)	0 (0/55)	0.004
2. Non-curriculum programs targeting protective factors	≥9hrs non-classroom resilience instruction (Year 10)[b]	87.5 (14/16)	77.8 (7/9)	0.60
	At least one resilience program/resource used outside of curriculum[b]	88.9 (16/18)	81.8 (9/11)	0.60
	Most used resource: MindMatters[b]	61.1 (11/18)	18.2 (2/11)	0.05
	Number of programs used (Mean (SD)) (Intervention n = 18; control n = 11)[b]	3.1 (1.83)	1.2 (0.87)	0.004
3. Additional program targeting protective factors for Aboriginal students	≥9hrs non-classroom resilience instruction (Year 10 Aboriginal students)[c]	86.7 (13/15)	100.0 (5/5)	1.0
Ehtos and environment				
4. Rewards and recognition program	At least one whole school rewards/recognition program[d]	100.0 (19/19)	100 (10/10)	1.0
5. Peer support/peer mentoring programs	At least one peer support[d] (either peer support or buddy program/peer mentoring across all kids in any Year group)	77.8 (14/18)	90.9 (10/11)	0.62
6. Anti-bullying programs	At least one whole school anti-bullying initiative/program[d]	100.0 (19/19)	100 (10/10)	1.0
7. Empowerment/leadership programs	At least one peer leadership training or one program that students were active participants in all levels of planning and decision making across all kids in any Year group[d]	83.3 (15/18)	100 (11/11)	0.27
8. Additional empowerment/leadership/mentoring programs for Aboriginal students	At least one additional program (peer support, peer leadership, peer mentoring or program that students were active participants in all levels of planning and decision making across) in any Year group for Aboriginal students)[c]	89.5 (17/19)	70.0 (7/10)	0.31
9. Aboriginal cultural awareness strategies (Examples: Aboriginal cultural art project	At least one cultural awareness strategy for non-Aboriginal students/staff across whole school[c]	89.5 (17/19)	70.0 (7/10)	0.30
Partnerships and services				
10. Promotion/engagement of local community organisations/groups/clubs in school	Partnership[e] with at least 3 community organisations[b]	33.4 (6/18)	18.2 (2/11)	0.67
11. Additional/enhanced consultation activities with Aboriginal community groups	Consultation in the development/running of Aboriginal cultural awareness strategies for non-Aboriginal staff/students)[b]	16 (84.2)	6 (60.0)	0.19
12. Promotion/engagement of health, community and youth services in the school	Partnership[e] with at least one health/community services[b]	61.1 (11/18)	45.5 (5/11)	0.47
13. Additional/enhanced Aboriginal community organisations promoted or engaged	Partnership[e] with at least one Aboriginal local community organization[c]	36.8 (7/19)	20.0 (2/10)	0.4
14. Referral pathways to health, community and youth services developed and promoted	Promotion of any health or community services at school[b]	18 (100.0)	11 (100.0)	1.0
15. Strategies to increase parental involvement in school	Implementation of at least 1 parent engagement strategy[b]	94.4 (17/18)	100.0 (11/11)	1.0
16. Information regarding student protective factors provided to parents via school newsletter	Provided information to parents at least once a term regarding enhancing student resilience[d]	64.7 (11/17)	44.4 (4/10)	0.42

[a] Informants were Head Teachers from 5 Key Learning Areas (KLAs); English, Maths, PDHPE, Science, HSIE. Schools with data from Head Teachers from 2 or more KLAs were included (n = 17 intervention; n = 11 control).

[b] Informants were Head Teachers Welfare.

[c] Informants were designated Aboriginal contact persons for each school. For strategy 3, 9 respondents were excluded as they were unable to estimate hours.

[d] Informants were Deputy Principals.

[e] Key informants (Head Teacher Welfare for strategy 10 and 12, and Aboriginal contact person for strategy 13) were asked to nominate up to 5 active partnerships with organisations or services. They were asked whether or not each partnership had a range of characteristics including: a formal agreement on services provided, consistency of the partnership with aims of the School Plan, regular meetings to review and evaluate partnership, service specifically tailored to school community needs, multiyear endeavour.

were targeted (school support, meaningful school participation, and peer caring relationships). Finally, further potential reasons provided in previous studies may also explain the null effects of this trial including: difficulty in assessing effects in adolescence due to the large developmental change that occurs during the time of intervention implementation (Trudeau, Spoth, Randall, Mason, & Shin, 2012); and potential for protective factor interventions to be more effective if implemented earlier in childhood rather than adolescence (Lowry-Webster et al., 2003).

Strengths of the current study included the cluster randomised controlled trial study design, the large scope of implementation support strategies, the important focus on strengthening student resilience and reducing mental health problems in adolescents, and the large sample size. A common limitation of school-based research (Ellickson, Bianca, & Schoeff, 1988; Pirie et al., 1989), attrition was around 30% in the current study, with some differences between the students who did not complete the follow-up survey and those who did. These differences coupled with previous research suggesting that exclusive reliance on adolescent self-report may result in under-reporting of mental health problems (R. Goodman et al., 1998) raises concern that the prevalence of mental health problems may have been underestimated in the present study. In relation to the finding that significantly more Aboriginal students than non-Aboriginal students were lost to follow-up, lower rates of school retention and completion for Aboriginal students (Purdie & Buckley, 2010; Schwab, 1999) may have contributed to such differential attrition. Additionally, the present intervention was designed for universal implementation with strategies to improve appropriateness of the intervention for Aboriginal students added prospectively through collaboration with Aboriginal community representatives, an Aboriginal Advisory Group in the project governance structure and Aboriginal members of the research team. Planned future analyses for the present trial will include examination of the impact of the program on Aboriginal students and consider the appropriateness of its implementation with Aboriginal students. Finally, the staff report implementation data used a single informant for school strategies, and included variables that were difficult to report accurately (e.g., number of hours of resilience content across a key learning area for a Grade). However, although limited, the collection of such data was a feasible way to provide a comparison between intervention and control schools in their implementation of strategies targeting protective factors.

The current study contributes results from a universal, school-based, pragmatic resilience protective factor intervention relating to mental health outcomes in a sample of adolescents, to a large related research field. Additionally, the study highlights the continued difficulties in developing sustainable and scalable prevention programs that provide both effective strengthening of protective factors and prevention of mental health problems in adolescents (Roberts et al., 2010).

Declaration of interest

The authors declare that they have no competing interests.

Contributions

JD drafted the manuscript and participated in the design and coordination of the study. MF, JB, EC and JW helped draft the manuscript; participated in a critical review of the manuscript content; and participated in the conception, design and co-ordination of the study. RH participated in critical review of the manuscript; and participated in the conception, design and coordination of the study. LW and KG participated in critical review of the manuscript; and participated in the conception and design of the study. JR, CAL, and SG participated in critical review of the manuscript; and the design and co-ordination of the study. CO, JA, and CHL gave statistical support and participated in critical review of the manuscript. All authors read and approved the final manuscript.

Availability of data and material

The datasets generated and analysed during the current study are not publicly available to preserve the privacy of participants, however are available from the chief investigator Prof John Wiggers on reasonable request.

For the duration of the research project a HSHF Aboriginal Cultural Steering Group made up of Aboriginal staff from local Aboriginal community organisations and Government Departments was established to provide Aboriginal cultural advice and direction regarding the design, implementation, evaluation and dissemination of all research trial elements. Similarly, a HSHF Cultural Advice Group was established consisting of Aboriginal staff from the HSHF project team to provide advice regarding the research trial. We would like to thank the members of both the HSHF Aboriginal Cultural Steering Group and the HSHF Cultural Advice Group for their on-going advice. Additionally, ethical approval was received from the Aboriginal Health and Medical Research Council (AH&MRC).

Abbreviations

NSW   New South Wales
SDQ   Strengths and Difficulties Questionnaire
LGA   Local Government Area
SEIFA   Socio-Economic Indexes for Areas
ITT   Intention-to-treat

Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.adolescence.2017.03.009.

References

Aberdeen University: Health Services Research Unit. (2011). *Database of intra-correlation co-efficients (ICCs). Study Design.* Retrieved from www.abdn.ac.uk/hsru/research/research-tools/study-design.
Araya, R., Fritsch, R., Spears, M., Rojas, G., Martinez, V., Barroilhet, S., et al. (2013). School intervention to improve mental health of students in Santiago, Chile: A randomized clinical trial. *JAMA Pediatrics, 167*(11), 1004–1010.
Australian Curriculum Assessment and Reporting Authority. (2010). *My school.* Retrieved from www.myschool.edu.au.
BeyondBlue. (2016). *SenseAbility resources.* Retrieved from https://www.beyondblue.org.au/healthy-places/secondary-schools-and-tertiary/senseability/senseability-resources.
BeyondBlue and the Department of Health of the Australian Government. (2016). *MindMatters.* Retrieved from https://www.mindmatters.edu.au/.
Blakemore, S., & Mills, K. L. (2014). Is Adolescence a sensitive period for sociocultural processing? *Annual Review of Psychology, 65*(1), 187–207.
Board of Studies Teaching and Educational Standards NSW. (2016). *K-10 curriculum framework.* Retrieved from https://www.boardofstudies.nsw.edu.au/syllabuses/curriculum-development/k-10-curriculum-framework.html.
Bond, L., Glover, S., Godfrey, C., Butler, H., & Patton, G. C. (2001). Building capacity for system-level change in schools: Lessons from the Gatehouse Project. *Health Education & Behavior, 28,* 368–383.
Bond, L., Patton, G., & Glover, S. (2004). The Gatehouse Project: Can a multilevel school intervention affect emotional wellbeing and health risk behaviours? *Journal Epidemiology Community Health, 58*(12), 997–1003. http://dx.doi.org/10.1136/jech.2003.009449.
Bond, L., Toumbourou, J. W., Thomas, L., Catalano, R. F., & Patton, G. (2005). Individual, family, school, and community risk and protective factors for depressive symptoms in adolescents: A comparison of risk profiles for substance use and depressive symptoms. *Prevention Science, 6*(2), 73–88. http://dx.doi.org/10.1007/s11121-005-3407-2.
Brooks, J. E. (2006). Strengthening resilience in children and youths: Maximising opportunities through schools. *Children & Schools, 28*(2), 69–76. http://dx.doi.org/10.1093/cs/28.2.69.
Buckley, S., Cannon, M., Chambers, D., Coughlan, H., Duffy, M., Gavin, B., et al. (2011). *The international declaration on youth mental health.* Killarney, Ireland: International Association of Youth Mental Health. Retrieved from http://www.iaymh.org/f.ashx/IDYMH_Long-Version_Oct2013-1-.pdf.
Burckhardt, R., Manicavasagar, V., Batterham, P. J., Miller, L. M., Talbot, E., & Lum, A. (2015). A web-based adolescent positive psychology program in schools: Randomized controlled trial. *Journal of Medical Internet Research, 17*(7), e187. http://dx.doi.org/10.2196/jmir.4329.
Buttigieg, J. P., Shortt, A. L., Slaviero, T. M., Hutchinson, D., Kremer, P., & Toumbourou, J. W. (2015). A longitudinal evaluation of the Resilient Families randomized trial to prevent early adolescent depressive symptoms. *Journal of Adolescence, 44,* 204–213. http://dx.doi.org/10.1016/j.adolescence.2015.07.014.
Cahill, H., Beadle, S., Farrelly, A., Forster, R., & Smith, K. (2014). *Building resilience in children and young people: A literature review for the deapartment of education and early childhood development (DEECD).* Melbourne, VIC, Australia: Youth Research Centre, Melbourne Graduate School of Education, University of Melbourne. Retrieved from http://www.education.vic.gov.au/Documents/about/department/resiliencelitreview.pdf.
Calear, A. L., Christensen, H., Mackinnon, A., Griffiths, K. M., & O'Kearney, R. (2009). The YouthMood project: A cluster randomized controlled trial of an online cognitive behavioral program with adolescents. *Journal of Consulting & Clinical Psychology, 77*(6), 1021–1032. http://dx.doi.org/10.1037/a0017391.
California Department of Education (Producer). (2013). *California Healthy Kids survey. Resilience & youth development Module: Supplement 1.*
Cardemil, E. V., Reivich, K. J., Beevers, C. G., Seligman, M. E., & James, J. (2007). The prevention of depressive symptoms in low-income, minority children: Two-year follow-up. *Behaviour Research and Therapy, 45*(2), 313–327. http://dx.doi.org/10.1016/j.brat.2006.03.010. Retrieved from http://onlinelibrary.wiley.com/o/cochrane/clcentral/articles/086/CN-00576086/frame.html.
Centre for Education Statistics and Evaluation. (2015). *Literature Review: Student wellbeing.* Sydney, Australia: Centre for Education Statistics and Evaluation, and NSW Department of Education and Communities. Retrieved from https://www.cese.nsw.gov.au/publications-filter/student-wellbeing-literature-review.
Chaplin, T. M., Gillham, J. E., Reivich, K., Elkon, A. G. L., Samuels, B., Freres, D. R., et al. (2006). Depression prevention for early adolescent girls: A pilot study of all girls versus co-ed groups. *The Journal of Early Adolescence, 26*(1), 110–126. http://dx.doi.org/10.1177/0272431605282655.
Chisholm, K. E., Patterson, P., Torgerson, C., Turner, S., & Birchwood, M. (2012). A randomised controlled feasibility trial for an educational school-based mental health intervention: Study protocol. *BMC Psychiatry, 12,* 23–29. http://dx.doi.org/10.1186/1471-244X-12-23.
Cowen, E. L., Hightower, A. D., Pedro-Carroll, J. L., Work, W. C., Wyman, P. A., & Haffey, W. G. (1996). *The Rochester Child Resilience Project School-based prevention for children at risk: The Primary Mental Health Project* (pp. 255–274). Washington, DC, US: American Psychological Association; US.
Cutuli, J., Gillham, J. E., Chaplin, T. M., Reivich, K. J., Seligman, M. E., Gallop, R. J., et al. (2013). Preventing adolescents' externalizing and internalizing symptoms: Effects of the penn resiliency program. *The International Journal of Emotional Education, 5*(2), 67–79.
Davydov, D. M., Stewart, R., Ritchie, K., & Chaudieu, I. (2010). Resilience and mental health. *Clinical Psychology Review, 30,* 479–495.
Department of Health and Aged Care. (2001). *Measuring remoteness: Accessibility/remoteness Index of Australia (ARIA).* Canberra, Australia: Australian Government. Retrieved from http://www.health.gov.au/internet/main/publishing.nsf/Content/health-historicpubs-hfsocc-ocpanew14a.htm.

Dray, J., Bowman, J., Freund, M., Campbell, E., Hodder, R. K., Lecathelinais, C., et al. (2016). Mental health problems in a regional population of Australian adolescents: Association with socio-demographic characteristics. *Child and Adolescent Psychiatry and Mental Health, 10*(32). http://dx.doi.org/10.1186/s13034-016-0120-9.

Dray, J., Bowman, J., Freund, M., Campbell, E., Wolfenden, L., Hodder, R. K., et al. (2014). Improving adolescent mental health and resilience through a resilience-based intervention in schools: Study protocol for a randomised controlled trial. *Trials, 15*, 289. http://dx.doi.org/10.1186/1745-6215-15-289.

Ellickson, P. L., Bianca, D., & Schoeff, D. C. (1988). Containing attrition in school-based research: An innovative approach. *Evaluation Review, 12*(4), 331–351.

Fergusson, D. M., & Woodward, L. J. (2002). Mental health, educational, and social role outcomes of adolescents with depression. *Archives of General Psychiatry, 59*(3), 225–231. http://dx.doi.org/10.1001/archpsyc.59.3.225.

Fergus, S., & Zimmerman, M. A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annual Review of Public Health, 26*, 399–419.

Fitzpatrick, C., Conlon, A., Cleary, D., Power, M., King, F., & Guerin, S. (2013). Enhancing the mental health promotion component of a health and personal development programme in Irish schools. *Advances in School Mental Health Promotion, 6*(2), 122–138.

Fitzpatrick, C., Power, M., Brosnan, E., Cleary, D., Conlon, A., & Guerin, S. (2009). Working things out through SPHE-A journey from community to clinic and back. *Advances in School Mental Health Promotion, 2*(3), 38–45. http://dx.doi.org/10.1080/1754730X.2009.9715709.

Friedli, L. (2009). *Mental health, resilience and inequalities*. Copenhagon, Europe: World Health Organisation. Retrieved from http://www.euro.who.int/__data/assets/pdf_file/0012/100821/E92227.pdf.

Gillham, J. E., Reivich, K. J., Freres, D. R., Chaplin, T. M., Shatte, A. J., Samuels, B., et al. (2007). School-based prevention of depressive symptoms: A randomized controlled study of the effectiveness and specificity of the penn resiliency program. *Journal of Consulting & Clinical Psychology, 75*(1), 9–19.

Goodman, R. (1997). The strengths and difficulties questionnaire: A research note. *Journal of Child Psychology and Psychiatry, 38*(5), 581–586.

Goodman, A., & Goodman, R. (2009). Strengths and Difficulties Questionnaire as a dimensional measure of child mental health. *Journal of the American Academy of Child and Adolescent Psychiatry, 48*(4), 400–403.

Goodman, A., Lamping, D. L., & Ploubidis, G. B. (2010). When to use broader internalising and externalising subscales instead of the hypothesised five subscales on the strengths and difficulties questionnaire (SDQ): Data from British parents, teachers and children. *Journal of Abnormal Child Psychology, 38*(8), 1179–1191.

Goodman, R., Meltzer, H., & Bailey, V. (1998). The strengths and difficulties questionnaire: A pilot study on the validity of the self-report version. *European Child & Adolescent Psychiatry, 7*(3), 125–130.

Greenberg, M. T., Domitrovich, C., & Bumbarger, B. (2001). The prevention of mental disorders in school-aged children: Current state of the field. *Prevention and Treatment, 4*(1). http://dx.doi.org/10.1037/1522-3736.4.1.41a.

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *The Milbank Quarterly, 82*(4), 581–629.

Hanson, T. L., & Kim, J. O. (2007). *Measuring resilience and youth development: The psychometric properties of the Healthy Kids Survey (Issues & Answers Report, REL 2007–No. 034)*. Retrieved from Washington, DC http://ies.ed.gov/ncee/edlabs.

Hawkins, J. D., Oesterle, S., Brown, E. C., Abbott, R. D., & Catalano, R. F. (2014). Youth problem behaviors 8 years after implementing the communities that care prevention system: A community-randomized trial. *JAMA Pediatrics, 168*(2), 122–129. http://dx.doi.org/10.1001/jamapediatrics.2013.4009.

Hjemdal, O., Friborg, O., Stiles, T. C., Rosenvinge, J. H., & Martinussen, M. (2006). Resilience predicting psychiatric symptoms: A prospective study of protective factors and their role in adjustment to stressful life events. *Child Psychology and Psychotherapy, 13*(3), 194–201.

Hjemdal, O., Vogel, P. A., Solem, S., Hagen, K., & Stiles, T. C. (2011). The relationship between resilience and levels of Anxiety, Depression, and Obsessive–Compulsive symptoms in adolescents. *Clinical Psychology and Psychotherapy, 18*(4). http://dx.doi.org/10.1002/cpp.719, 214–321.

Hodder, R., Daly, J., Freund, M., Bowman, J., Hazell, J., & Wiggers, J. (2011). A school-based resilience intervention to decrease tobacco, alcohol and marijuana use in high school students. *BMC Public Health, 11*, 722.

Hodder, R., Freund, M., Bowman, J., Wolfenden, L., Campbell, E., Wye, P., et al. (2012). A cluster randomised trial of a school-based resilience intervention to decrease tobacco, alcohol and illicit drug use in secondary school students: Study protocol. *BMC Public Health, 12*, 1009.

Hodgson, R., Abbasi, T., & Clarkson, J. (1996). Effective mental health promotion: A literature review. *Health Education Journal, 55*(1), 55–74. http://dx.doi.org/10.1177/001789699605500106.

Horowitz, J. L., Garber, J., Ciesla, J. A., Young, J. F., & Mufson, L. (2007). Prevention of depressive symptoms in adolescents: A randomized trial of cognitive-behavioral and interpersonal prevention programs. *Journal of Consulting and Clinical Psychology, 75*(5), 693–706. http://dx.doi.org/10.1037/0022-006X.75.5.693.

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national comorbidity survey replication. *Archives of General Psychiatry, 62*(6), 593–602.

Kieling, C., Baker-Henningham, H., Belfer, M., Conti, G., Ertem, I., Omigbodun, O., et al. (2011). Child and adolescent mental health worldwide: Evidence for action. *The Lancet, 378*(9801), 1515–1525. http://dx.doi.org/10.1016/S0140-6736(11)60827-1.

Kindt, K. C. M., Kleinjan, M., Janssens, J. M. A. M., & Scholte, R. H. J. (2014). Evaluation of a school-based depression prevention program among adolescents from low-income areas: A randomized controlled effectiveness trial. *International Journal of Environmental Research and Public Health, 11*, 5273–5293. http://dx.doi.org/10.3390/ijerph110505273.

Lawrence, D., Johnson, S., Hafekost, J., Boterhoven de Haan, K., Sawyer, M., Ainley, J., et al. (2015). *The mental health of children and adolescents: Report on the second Australian child and adolescent survey of mental health and wellbeing*. Canberra, ACT, Australia: Department of Health. Retrieved from https://www.health.gov.au/internet/main/publishing.nsf/Content/9DA8CA21306FE6EDCA257E2700016945/$File/child2.pdf.

Lee, P. C., & Stewart, D. E. (2013). Does a socio-ecological school model promote resilience in primary schools? *Journal of School Health, 83*(11), 795–804.

Leventhal, K. S., Gillham, J., DeMaria, L., Andrew, G., Peabody, J., & Leventhal, S. (2015). Building psychosocial assets and wellbeing among adolescent girls: A randomized controlled trial. *Journal of Adolescence, 45*, 284–295. http://dx.doi.org/10.1016/j.adolescence.2015.09.011.

Lock, S., & Barrett, P. M. (2003). A longitudinal study of developmental differences in universal preventive intervention for child anxiety. *Behaviour Change, 20*(04), 183–199. http://dx.doi.org/10.1375/bech.20.4.183.29383.

Lowry-Webster, H. M., Barrett, P. M., & Lock, S. (2003). A universal prevention trial of anxiety symptomology during childhood: Results at 1-year follow-up. *Behaviour Change, 20*(01), 25–43. http://dx.doi.org/10.1375/bech.20.1.25.24843.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*(3), 543–562.

Mathai, J., Anderson, P., & Bourne, A. (2003). Use of the Strengths and Difficulties Questionnaire as an outcome measure in a child and adolescent mental health service. *Australasian Psychiatry, 11*(3), 334–337.

McCall, R. B. (2009). *Evidence-based programming in the context of practice and policy*. Retrieved from Society for Research in Child Development: Ann Arbor, Michigan http://files.eric.ed.gov/fulltext/ED509748.pdf.

Mellor, D. (2005). Normative data for the strengths and difficulties questionnaire in Australia. *Australian Psychologist, 40*(3), 215–222.

Melnyk, B. M., Kelly, S., Jacobson, D., Belyea, M., Shaibi, G., Small, L., & Marsiglia, F. F. (2013). The COPE healthy lifestyles TEEN randomized controlled trial with culturally diverse high school adolescents: Baseline characteristics and methods. *Contemporary Clinical Trials, 36*(1), 41–53. http://dx.doi.org/10.1016/j.cct.2013.05.013.

Mental Health First Aid. (2016). *Mental health first aid Australia*. Retrieved from https://mhfa.com.au/.

Merry, S., McDowell, H., Wild, C. J., Bir, J., & Cunliffe, R. (2004). A randomized placebo-controlled trial of a school-based depression prevention program. *Journal of American Academy of Child and Adolescent Psychiatry, 43*(5), 538–547. http://dx.doi.org/10.1097/00004583-200405000-00007.

MindMatters. (2000). *Evaluation Consortium: MindMatters: A mental health promotion resource for secondary schools* (Retrieved from Newcastle).

Minnard, C. V. (2002). A strong building: Foundation of protective factors in schools. *Children & Schools, 24*(4), 233–246.

Muris, P., Meesters, C., & van den Berg, F. (2003). The Strengths and Difficulties Questionnaire (SDQ): Further evidence for its reliability and validity in a community sample of Dutch children and adolescents. *European Child & Adolescent Psychiatry, 12*, 1–8.

NSW Department of Education and Communities. (2011). *Low socio-economic status school communities national partnership* (Retrieved from Sydney: New South Wales).

O'Mara, L., & Lind, C. (2013). What do we know about school mental health promotion programmes for children and youth? *Advances in School Mental Health Promotion, 6*(3), 203–224.

Queensland University of Technology. (12th August 2013). Resourceful adolescent program. Retrieved 16th December, 2013, from http://www.rap.qut.edu.au/.

Patel, V., Flisher, A. J., Hetrick, S., & McGorry, P. (2007). Mental health of young people: A global public-health challenge. *The Lancet, 369*(9569), 1302–1313.

Patton, G. C., Bond, L., Carlin, J. B., Thomas, L., Butler, H., Glover, S., et al. (2006). Promoting social inclusion in schools: A group-randomised trial of effects on student health risk behaviour and well-being. *American Journal of Public Health, 96*(9), 1582–1587.

Perry, Y., Petrie, K., Buckley, H., Cavanagh, L., Clarke, D., Winslade, M., et al. (2014). Effects of a classroom-based educational resource on adolescent mental health literacy: A cluster randomised controlled trial. *Journal of Adolescence, 37*(7), 1143–1151. http://dx.doi.org/10.1016/j.adolescence.2014.08.001.

Petersen, A. C., Leffert, N., Graham, B., Alwin, J., & Ding, S. (1997). Promoting mental health during the transition into adolescence. In J. Schulenberg, J. L. Maggs, & K. Hurrelmann (Eds.), *Health risks and developmental transitions during adolescence*. Camnridge: Cambridge University Press.

Pirie, P., Thomson, S. J., Mann, S. L., Peterson, A. V., Murray, D. M., Flay, B. R., et al. (1989). Tracking and attrition in longitudinal school-based smoking prevention research. *Preventive Medicine, 18*(2), 249–256.

Possel, P., Horn, A. B., Groen, G., & Hautzinger, M. (2004). School-based prevention of depressive symptoms in adolescents: A 6-month follow-up. *Journal of the American Academy of Child and Adolescent Psychiatry, 43*(8), 1003–1010. http://dx.doi.org/10.1097/01.chi.0000126975.56955.98.

Pössel, P., Seemann, S., & Hautzinger, M. (2008). Impact of comorbidity in prevention of adolescent depressive symptoms. *Journal of Counseling Psychology, 55*(1), 106–117.

Purdie, N., & Buckley, S. (2010). *School attendance and retention of Indigenous Australian students*. Retrieved from Australian Government, Australian Institute of Health and Welfare, and Australian Institute of Family Studies: Australia http://www.aihw.gov.au/uploadedFiles/ClosingTheGap/Content/Publications/2010/ctg-ip01.pdf.

Redmond, C., Spoth, R., Shin, C., Schainker, L. M., Greenberg, M. T., & Feinberg, M. (2009). Long-Term protective factor outcomes of evidence-based interventions implemented by community teams through a community-university partnership. *The Journal of Primary Prevention, 30*(5), 513–530. http://dx.doi.org/10.1007/s10935-009-0189-5.

Rescorla, L., Achenbach, T. M., Ivanova, M. Y., Dumenci, L., Almqvist, F., Bilenberg, N., et al. (2007). Epidemiological comparisons of problems and positive qualities reported by adolescents in 24 countries. *Journal of Consulting and Clinical Psychology, 75*(2), 351–358.

Rivet-Duval, E., Heriot, S., & Hunt, C. (2011). Preventing adolescent depression in Mauritius: A universal school-based program. *Child and Adolescent Mental Health, 16*(2), 86–91. http://dx.doi.org/10.1111/j.1475-3588.2010.00584.x.

Roberts, C. M., Kane, R., Bishop, B., Cross, D., Fenton, J., & Hart, B. (2010). The prevention of anxiety and depression in children from disadvantaged schools. *Behaviour Research & Therapy, 48*(1), 68–73. http://dx.doi.org/10.1016/j.brat.2009.09.002.

Rodgers, A., & Dunsmuir, S. (2015). A controlled evaluation of the 'FRIENDS for life' emotional resiliency programme on overall anxiety levels, anxiety subtype levels and school adjustment. *Child and Adolescent Mental Health, 20*(1), 13–19. http://dx.doi.org/10.1111/camh.12030.

Rose, K., Hawes, D. J., & Hunt, C. J. (2014). Randomized controlled trial of a friendship skills intervention on adolescent depressive symptoms. *Journal of Consulting and Clinical Psychology, 82*(3), 510–520. http://dx.doi.org/10.1037/a0035827.

Rubin, D. B. (1987). *Multiple imputation for nonresponse in surveys*. New York: Wiley.

Ruini, C., Ottolini, F., Tomba, E., Belaise, C., Albieri, E., & Visani, D., et al. (2009). School intervention for promoting psychological well-being in adolescence. *Journal of Behavior Therapy & Experimental Psychiatry, 40*(4), 522–532. http://dx.doi.org/10.1016/j.jbtep.2009.07.002.

SAS Institute Inc. (2013). *SAS software version 9.4 for windows*. Cary, North Carolina: USA: SAS Institute Inc.

Sawyer, M. G., Harchak, T. F., Spence, S. H., Bond, L., Graetz, B., Kay, D., et al. (2010). School-based prevention of depression: A 2-year follow-up of a randomized controlled trial of the beyondblue schools research initiative. *Journal Adolescent Health, 47*(3), 297–304. http://dx.doi.org/10.1016/j.jadohealth.2010.02.007.

Schwab, R. G. (1999). *Why only one in three? The complex reasons for low indigenous school retention CAEPR Research Monograph No. 16*. Canberra, ACT, Australia: Centre for Aboriginal Economic Policy Research, The Australian National University.

Seligman, M. E. P., Ernst, R. M., Gillham, J., Reivich, K., & Linkins, M. (2009). Positive education: Positive psychology and classroom interventions. *Oxford Review of Education, 35*(3), 293–311.

Spoth, R., & Greenberg, M. T. (2005). Toward a comprehensive strategy for effective practitioner–scientist partnerships and larger-scale community health and well-being. *American Journal of Community Psychology, 35*(3–4), 107–126.

Spoth, R., Redmond, C., Shin, C., Greenberg, M. T., Clair, S., & Feinberg, M. (2007). Substance-use outcomes at 18 months past baseline: The PROSPER community-university partnership trial. *American Journal of Preventive Medicine, 32*(5), 395–402. http://dx.doi.org/10.1016/j.amepre.2007.01.014.

Spoth, R., Redmond, C., Shin, C., Greenberg, M. T., Feinberg, M., & Schainker, L. (2013). PROSPER community-university partnership delivery system effects on substance misuse through 6 1/2 years past baseline from a cluster randomized controlled intervention trial. *Preventive Medicine, 56*(3–4), 190–196. http://dx.doi.org/10.1016/j.ypmed.2012.12.013.

Spoth, R., Trudeau, L. S., Redmond, C. R., Shin, C., Greenberg, M. T., Feinberg, M. E., et al. (2015). PROSPER partnership delivery system: Effects on adolescent conduct problem behavior outcomes through 6.5 years past baseline. *Journal of Adolescence, 45*, 44–55.

Sun, J., & Stewart, D. E. (2010). Promoting student resilience and wellbeing: Asia-pacific resilient children and communities project. In T. Lovat, R. Toomey, & N. Clement (Eds.), *International research handbook on values education and student wellbeing* (pp. 409–426). New York, US: Springer Science + Business Media.

Tak, Y. R., Kleinjan, M., Lichtwarck-Aschoff, A., & Engels, R. C. (2014). Secondary outcomes of a school-based universal resiliency training for adolescents: A cluster randomized controlled trial. *BMC Public Health, 14*(1171). http://dx.doi.org/10.1186/1471-2458-14-1171.

Tak, Y. R., Lichtwarck-Aschoff, A., Gillham, J. E., Van Zundert, R. M., & Engels, R. C. (2016). Universal school-based depression prevention 'op volle kracht': A longitudinal cluster randomized controlled trial. *Journal Abnormal Child Psychology, 44*(5), 949–961. http://dx.doi.org/10.1007/s10802-015-0080-1.

Thorpe, K. E., Zwarenstein, M., Oxman, A. D., Treweek, S., Furberg, C. D., Altman, D. G., et al. (2009). A pragmatic-explanatory continuum indicator summary (PRECIS): A tool to help trial designers. *Journal of Clinical Epidemiology, 62*(5), 464–475.

Tomba, E., Belaise, C., Ottolini, F., Ruini, C., Bravi, A., Albieri, E., et al. (2010). Differential effects of well-being promoting and anxiety-management strategies in a non-clinical school setting. *Journal of Anxiety Disorders, 24*(3), 326–333. http://dx.doi.org/10.1016/j.janxdis.2010.01.005. Retrieved from http://onlinelibrary.wiley.com/o/cochrane/clcentral/articles/144/CN-00753144/frame.html.

Trewin, D. (2003). *Information paper census of population and housing socio-economic indexes for areas: Australia 2001*. Retrieved from Australian Bureau of Statistics: Commonwealth of Australia: Canberra, ACT, Australia http://www.ausstats.abs.gov.au/Ausstats/free.nsf/Lookup/AFF5E8542B58B94ECA256DD5007A3DF8/$File/20390_2001.pdf.

Trudeau, L., Spoth, R., Randall, G. K., & Azevedo, K. (2007). Longitudinal effects of a universal family-focused intervention on growth patterns of adolescent internalizing symptoms and polysubstance use: Gender comparisons. *Journal of Youth & Adolescence, 36*(6), 725–740. http://dx.doi.org/10.1007/s10964-007-9179-1.

Trudeau, L., Spoth, R., Randall, G. K., Mason, W. A., & Shin, C. (2012). Internalizing symptoms: Effects of a preventive intervention on developmental pathways from early adolescence to young adulthood. *Journal of Youth & Adolescence, 41*(6), 788–801. http://dx.doi.org/10.1007/s10964-011-9735-6.

Urbis. (2011). *Literature review on meeting the psychological and emotional wellbeing needs of children and young people: Models of effective practice in educational settings*. Retrieved from Final Report, prepared for the NSW Department of Education and Communities: Australia https://www.det.nsw.

edu.au/media/downloads/about-us/statistics-and-research/public-reviews-and-enquiries/school-counselling-services-review/models-of-effective-practice.pdf.

Victoria State Government. (2014, 19 September 2014). *Building resilience. Child health and wellbeing.* Retrieved from http://www.education.vic.gov.au/school/parents/health/Pages/resilience.aspx.

Weisz, J. R., Sandler, I. N., Durlak, J. A., & Anton, B. S. (2005). Promoting and protecting youth mental health through evidence-based prevention and treatment. *American Psychologist, 60*(6), 628−648. http://dx.doi.org/10.1037/0003-066X.60.6.628.

WestEd. (2013). *California Healthy Kids survey.* Retrieved from http://chks.wested.org/.

Wolpert, M., Humphrey, N., Deighton, J., Patalay, P., Fugard, A. J. B., Fonagy, P., et al. (2015). An evaluation of the implementation and impact of England's Mandated School-Based Mental Health Initiative in elementary schools. *School Psychology Review, 44*(1), 117−138.

World Health Organisation. (1991). *Planning meeting in health promoting schools project: Background, development and strategy outline of the health promoting schools project.* Copenhagen, Denmark: World Health Organisation.

World Health Organisation. (2014). *Health for the World's adolescents.* Geneva, Switzerland: World Health Organisation. Retrieved from http://apps.who.int/iris/bitstream/10665/112750/1/WHO_FWC_MCA_14.05_eng.pdf.

Wyn, J., Cahill, H., Holdsworth, R., Rowling, L., & Carson, S. (2000). MindMatters, a whole-school approach promoting mental health and wellbeing. *Australian and New Zealand Journal of Psychiatry, 34*(4), 594−601.