# Chapter 16
# Promoting Resilience in Children with Intellectual Disability: A Randomized Controlled Trial in Australian Schools

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## Introduction

Children with intellectual disability are more vulnerable to adverse developmental outcomes because of the lifelong risks associated with cognitive impairment. Difficulties with learning and adaptive behaviour inevitably produce considerable personal, social and economic disadvantage. Of concern is consistent evidence that psychiatric disorders affect a substantial proportion of people with intellectual disability. The estimated prevalence rate of between 35 and 49 % is three times that found in the general population (Wallander, Dekker, & Koot, 2006).

Until recently, mental illness has been relatively neglected for people with intellectual disability, especially in relation to prevention or early detection (Kolaitis, 2008) and most research to date has been descriptive rather than focused on intervention (Bouras, 2013). Yet a considerable body of evidence demonstrates that efficacious interventions do exist for preventing psychopathology and enhancing resilience in typically developing children and adolescents (see Mallin, Walker, & Levin, 2013 for a review). In order to prevent the high comorbidity of intellectual disability and psychopathology, there is a compelling need for evidence-based practices that promote the resilience of individuals with intellectual disability (Matson, Terlonge, & Minshawi, 2008).

In this chapter, we describe a randomized controlled trial of an intervention that was designed to enhance the resilience of a group of children with mild intellectual disability as they prepared to make the transition to high school. We report results

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from our evaluation of this intervention, and reflect on the difficulties of providing successful interventions for children whose lives are complicated not only by intellectual disability, but also by a range of contextual disadvantages.

## Characteristics and Life Outcomes for Children with Intellectual Disability

Compared with their typically developing peers, children with intellectual disability experience many difficulties that threaten optimum development. As well as having impairments in cognitive and adaptive functioning, many experience problems with communication, attention, self-regulation, social competence and behaviour (Harris, 2006). Sensory and physical health problems are relatively common (O'Hara, McCarthy, & Bouras, 2010; Oeseburg, Dijkstra, Groothoff, Reijneveld, & Jansen, 2011) and, not surprisingly, quality of life tends to be poorer (Hall & Hewson, 2006; Walsh et al., 2010). In particular, a robust association has been demonstrated between intellectual disability and psychopathology (Dykens, 2000; Honey, Emerson, & Llewellyn, 2011; Kiddle & Dagnan, 2011; Wallander et al., 2006). Individuals with intellectual disability have higher rates of mental health problems, both during childhood (Einfeld, Ellis, & Emerson, 2011) and in adulthood (Bhaumik, Tyrer, & McGrother, 2008; White, Chant, Edwards, Townsend, & Waghorn, 2005).

Children with intellectual disability may also experience socioeconomic disadvantage that increases their vulnerability to adverse life outcomes. They are more likely to be living in poverty (Emerson, Shahtahmasebi, Lancaster, & Berridge, 2010), either because their parents have restricted employment opportunities and other disadvantages related to lower intelligence, or because caring for children with intellectual disability represents a substantial financial burden for families (Meyers, Lukemeyer, & Smeeding, 1998). Mothers of children with intellectual disability tend to have more limited workforce participation, resulting in loss of family earnings, and increased vulnerability to poverty (Porterfield, 2002).

In a study of 11–19 year olds with intellectual disability, Taggart, Taylor, and McCrum-Gardner (2010) considered risk factors for those with and without behavioural and emotional problems. The group of students who displayed challenging behaviours, hyperactivity and mental health problems, had poorer physical health and had been exposed to a greater number of negative life events than those who were not behaviourally and emotionally disturbed. The family contexts of the two groups also differed. The students with behavioural and emotional problems were more likely to be living in rented accommodation in lower socioeconomic regions, with parents who were single and unemployed. Wallander et al. (2006) examined the mental health of 6–18 year olds with intellectual disability. They found that problems were relatively stable over a 1 year period, but three risk factors were uniquely associated with the development of new mental health problems: the child's physical health, family dysfunction, and parental psychiatric disorders. Similarly, Koskentausta, Iivanainen, and Almqvist (2007) identified higher risks of mental illness when 6- to 13-year-old children with intellectual disability had more significant impairments in cognitive, language, social and adaptive skills as well as family risk factors of single parenting and lower socioeconomic status.

## Resilience and Intellectual Disability

Despite the many risk factors associated with intellectual disability, some individuals do considerably better than others. More positive outcomes are probably due, at least in part, to a combination of protective personal characteristics (e.g., social competence, easy temperament and mastery orientation) and protective features of environments (e.g., family cohesiveness and positive school experiences). Surprisingly little is actually known about resilience in children with intellectual disability, despite the fact that they represent one of the most vulnerable groups. Although the resilience of *families* of children with intellectual disability has been examined extensively (see, for example, Gerstein, Crnic, Blacher, & Baker, 2009; Grant, Ramcharan, & Flynn, 2007), there has been little consideration of the protective factors that might limit the impact of intellectual disability on children's life opportunities and outcomes (Taggart et al., 2010).

For typically developing children, many individual and contextual protective factors have been associated with higher levels of resilience in the face of adversity (for recently published overviews, see Elliott, Kaliski, Burrus, & Roberts, 2013; Rutter, 2013). Individual characteristics include social competence, problem-solving skills, autonomy, sense of purpose, caring relationships, and meaningful participation (Werner, 2000). These protective factors tend to be more elusive for children with intellectual disability. They may struggle with social relationships, their problem-solving skills are limited by cognitive impairments, autonomy is difficult to achieve, and attaining purposeful and meaningful participation in a range of valued activities can be challenging because of restricted opportunities. Resilience research also highlights the important influence of protective factors within the contexts where children live and learn—their families, schools and communities—and the ways in which these factors interact with individual child characteristics such as personality and temperament (Condly, 2006; Emerson & Hatton, 2007; Jozefowicz-Simbeni & Allen-Meares, 2002). Children with intellectual disability may be disadvantaged by lack of understanding and support, low expectations, and limited opportunities for engagement.

In a comparison of children with and without intellectual disability, we found both similarities and differences in the protective factors that are associated with resilience (Gilmore, Campbell, Shochet, & Roberts, 2013). The sample of children with intellectual disability included those who participated in the intervention we describe later in this chapter. Both groups ($n = 115$ with intellectual disability, mean age 11.9 years; $n = 106$ developing typically, mean age 11.8 years) reported similar levels of personal protective factors such as optimism and self-efficacy, but those with intellectual disability reported lower tolerance, higher sensitivity, and fewer future goals than did their typically developing peers. Children with intellectual disability reported similar levels of support from their families and peers, but more support at school and less support in the community, when compared with the typically developing students.

It is not surprising that children with intellectual disability report being less tolerant and more sensitive than their peers. Skills such as explaining one's own position in a disagreement, making up after a fight, and staying calm when things do not work out, all require competencies such as perspective-taking and emotion-regulation that are often less well developed in children with intellectual disability. To some extent though, these areas may be amenable to intervention. Similarly, children with intellectual disability can be encouraged and supported to set goals. Making plans for the future and discussing those plans with parents and teachers has been identified as a significant predictor of positive adult outcomes for individuals with mild intellectual disability (Seltzer et al., 2009).

## Interventions for Children with Intellectual Disability

For children with intellectual disability, interventions have traditionally focused on promoting cognitive, educational and social development in early intervention settings during infancy and early childhood (Guralnick, 2005; Kube & Palmer, 2009; Lipkin & Schertz, 2008). Behavioural interventions are often implemented with older children, adolescents and adults, although such interventions tend to target individuals with existing problems, rather than those considered to be at risk. (For a review of evidence-based psychosocial interventions, see Didden et al., 2012.) Interventions for people with intellectual disability that aim to prevent the development of behavioural and psychiatric disorders by building resilience are crucial since mental health problems tend to be stable across childhood (Wallander et al., 2006) and to persist into adulthood (Honey et al., 2011).

Preventive intervention is likely to be particularly valuable at critical points across the lifespan, such as times of transition when individuals are more vulnerable. For children, these key normative transitions include the move from primary (elementary) to high school which presents increased risks to both academic and social functioning (Langenkamp, 2010) and is likely to be particularly challenging for children with intellectual disability (Dyke, Leonard, Bourke, Bebbington, & Bower, 2007). At this time, students move from a familiar environment to a new setting that has different demands and expectations. Challenges include the need to form new friendships and to adjust to multiple classes with potential reduction of individualized support for learning. The transition to high school has been associated with elevated risks of developing anxiety and depression (Benner, 2011). It is likely that students with intellectual disability are more vulnerable because of the difficulties they tend to experience with adjusting to environmental changes and forging new social relationships.

A substantial body of evidence demonstrates that it is possible to promote developmental outcomes and resilience in typically developing or disadvantaged children, although intervention effects are often modest, sometimes inconsistent, and not necessarily maintained. It can be difficult to determine why some programs are successful, while others have little or no effect, or to know precisely which components of successful programs are important. In addition, interventions that work well in one location with one group of participants will not necessarily be effective in another place and time, with a different group. Despite the plethora of available evidence-based programs, resilience-building interventions designed specifically for children with intellectual disability are not widely known. Although it may be presumed that children with intellectual disability who participate in general interventions benefit in similar ways to their typically developing peers, as far as we know evidence to support these assumptions has not been documented. We believe that children with intellectual disability are likely to gain more benefit from programs that are specially designed or modified, for instance by reducing the complexity of concepts, slowing down the rate of presentation, and incorporating components that address issues that may be particularly problematic for children with intellectual disability. Some behavioural interventions have indeed been adapted in these ways (see, for example, Sanders, Mazzucchelli, & Studman, 2004). It could be expected that interventions for children with intellectual disability which target aspects of functioning such as social skills, cognitive styles and affect regulation will increase their overall resilience and help to prevent the development of psychiatric disorders, but again the actual evidence is sparse.

In the next section of this chapter, we describe the trial of an intervention that aimed specifically to enhance the resilience of children with intellectual disability as they prepared to make the transition to high school. The study used an adapted version of an established resilience-building program, Aussie Optimism (Roberts, Ballantyne, & van der Klift, 2002), in a randomized controlled trial in two Australian states.

## Methodology of the Study

### *Participants*

Mainstream primary schools in the capital cities of two Australian states (Brisbane in Queensland, and Perth in Western Australia) were approached to participate in this study. Letters of invitation were forwarded to parents of children with intellectual disability who were enrolled in the final 2 years of schooling in the 46 schools that agreed to be involved in the study. Criteria for inclusion in the study included a formal diagnosis of intellectual disability that was based on the results of appropriate psychometric assessments (e.g., an individualized assessment of intellectual ability such as the Wechsler Intelligence Scale for Children—Fourth Edition (Wechsler, 2003)), in combination with a test of adaptive functioning such as the Vineland Adaptive Behavior Scales—Second Edition (Sparrow, Cicchetti, & Balla, 2005) and the absence of comorbid diagnoses such as Autistic Disorder or significant physical impairments.

Of the 46 schools, 25 were located in and around the city of Brisbane on the east coast of Australia, while 21 schools were 3,600 km (2,250 miles) away in or near the city of Perth on the west coast of the country. Within each state, schools were matched in pairs according to the socioeconomic status of the area in which they were located, using indicators from the Australian Bureau of Statistics Socio-Economic Indexes for Areas (SEIFA) (ABS, 2006). One school from each pair was then randomly assigned to the intervention condition, while the other school was wait-listed for the intervention. This process resulted in 63 children receiving the intervention (37 in Brisbane, 26 in Perth) and 47 being assigned to the control group (31 in Brisbane, 16 in Perth).

In total, 110 children (41 girls, 69 boys) completed pre-testing plus one or both post-tests. At the first time point, the children were aged from 9 years 8 months to 13 years 6 months, with a mean age of 11 years 10 months. Only two had a diagnosed organic aetiology (Down syndrome, Trisomy X) that accounted for their intellectual impairment. Given their enrolment in mainstream schools, it was assumed that the majority of children in the sample had a mild intellectual disability (i.e., an IQ in the range of approximately 55–69) which was associated with social-familial factors, biological insult or unknown genetic origin.

Complete sets of data could not be obtained for all children. Despite our careful piloting of the measures and their good overall reliability, a few children were noted to have difficulties with item comprehension or perseverative response patterns, and their data were thus not included. There were also instances of missing data due to children's unwillingness or inability to respond to certain items. In addition, 16 children were lost to the study at the second post-test which occurred after most of the sample had made the transition to high school. At this point some students either could not be located or did not agree to participate in the final phase of the research.

## *Measures*

A set of established questionnaires was used to obtain measures of child resilience and mental health at three time points (Time 1 pre-test, Time 2 post-test, Time 3 post-test). The questionnaires were first piloted with a subset of the sample (described below) in order to confirm their appropriateness for children with mild intellectual disability. In order to obtain child data from multiple informants, parents were invited to complete a set of questionnaires in each phase of the study, and teachers were asked to complete the Strengths and Difficulties Questionnaire (SDQ); however, the low response rate from both groups meant that their data could not be included in analyses.

*Resiliency Scales for Children and Adolescents* (RSCA) (Prince-Embury, 2007). The RSCA is a measure of self-reported strengths and vulnerabilities for children and adolescents aged 9–18 years. Rated on a five-point scale, the 64 items provide composite scores on three scales and ten subscales. The Mastery scale comprises the subscales Optimism, Self-Efficacy and Adaptability. (The latter subscale is for ages 15–18 only, although the item scores contribute to the Mastery scale score for younger children.) There are four subscales within Relatedness (Trust, Support, Comfort, Tolerance) and three subscales under Emotional Reactivity (Sensitivity, Recovery, Impairment). In the current study, Cronbach's alphas on the Mastery scale ranged from .89 to .92. Similarly high alphas were obtained for Relatedness (.93–.94) and Reactivity (.91–.95). Of the nine RSCA subscales at the three time points, the majority of alphas were above .8 (range .75–.92).

*Strengths and Difficulties Questionnaire* SDQ (Short Version) (Goodman, 1997). The SDQ is a self-report measure comprising 25 items assessing hyperactivity, emotional symptoms, friendship difficulties, conduct problems, and pro-social behaviours. Responses are recorded on a three-point scale. With the exception of pro-social behaviours, high scores indicate more difficulties with social-emotional functioning and behaviour. The full scale score (minus pro-social items) was used in the current study. Cronbach's alphas ranged from .67 at Time 1 to .77 at Time 3.

*Revised Children's Manifest Anxiety Scale: Second Edition* (RCMAS-2) (Reynolds & Richmond, 2008). The RCMAS is a self-report questionnaire that measures the level and nature of anxiety in children and adolescents aged 6–19 years. The measure comprises 37 items that produce scores on the subscales Physiological Anxiety, Worry, Social Anxiety, Defensiveness, and Inconsistent Responding. Responses are recorded as either "True" or "Not True". In the current study, the full scale score was used as an indication of children's level of anxiety. Cronbach's alphas ranged from .89 to .91 at the three time points.

*Intellectual Disability Mood Scale* (IDMS) (Argus, Terry, Bramston, & Dinsdale, 2004). The IDMS is a 12-item self-report instrument developed as a measure of moods (e.g., frightened, excited, sad, tired) in adolescents with intellectual disability. Responses are recorded on a five-point scale, with higher scores indicating greater difficulties with mood over the previous week. An evaluation study of the IDMS among 135 adolescents with mild intellectual disability found support for convergent and divergent validity of the scale. Cronbach's alphas in the current study ranged from .81 to .85.

*Moods and Feelings Questionnaire (Short Form)* (MAF) (Angold et al., 1995). The MAF is a 13-item self-report questionnaire for children and adolescents aged 8–18 years. It contains a series of descriptive phrases regarding how the respondent has been feeling or behaving in the past week (e.g., "I felt miserable or unhappy", "I felt lonely", "I was very restless", "I did everything wrong") that are rated on a three-point scale. The MAF has demonstrated high internal consistency and acceptable reliability. In the current study, Cronbach's alphas ranged from .85 to .88.

## *Intervention*

The Aussie Optimism Resilience Skills Program (Roberts et al., 2009) was specially developed for this study. It was based on Aussie Optimism (Roberts et al., 2002), an established program that aims to promote mental health and well-being, and prevent emotional problems such as depression and anxiety in typically developing children and adolescents. The original Aussie Optimism program, an adaptation of the Penn Prevention Program (PPP) (Gillham, Reivich, Jaycox, & Seligman, 1995), was designed as three separate programs for children in middle and upper primary (elementary) school and the first years of high school. The programs cover positive thinking skills, social life skills, and optimistic thinking skills in a school-based intervention that also includes parent and family components. The positive thinking skills program helps 8- to 10-year-old children to identify their feelings, link thoughts to feelings, develop positive ways of thinking, and learn strategies for overcoming worry and anxiety. At age 10–12 years, children participate in the social life skills program which teaches them emotional self-regulation, communication and coping skills, as well as the importance of engaging social support and networks. Older children (11–13 years of age) complete the third program that encourages optimistic thinking, challenges negative thoughts, and develops more positive self-esteem. All programs include instruction, discussions, activities, role plays, and short homework tasks. Within each of the programs, there are ten separate modules that are delivered in one hour weekly sessions across a 10-week period.

In studies with typically developing children, Aussie Optimism has been associated with reductions in anxiety and depression (Roberts et al., 2010; Roberts, Kane, Bishop, Matthews, & Thompson, 2004). In addition, improved social skills were reported following the intervention in a short-term study (Mills, 2007) and there appear to have been benefits also for children with conduct disorders (Swannell, Hand, & Martin, 2009) and substance abuse (Roberts et al., 2011).

Content for the intervention to be used in the current study was taken from the original Aussie Optimism program and adapted to make it more appropriate for children with intellectual disability in the final years of primary (elementary) school (i.e., age approximately 11–13 years). Some of the instructions were simplified (e.g., “describe a situation when you were happy” became “write or draw a time when you were happy”) and concepts that were somewhat vague or abstract were explained more clearly and concretely. For example, when discussing important behaviours that let someone know you are listening to them, “show you’re interested in the other person” was expanded to “show you’re interested in the other person by the look on your face” and combined with modelling of appropriate facial expressions. Given the importance of social skills and problem solving at this age, and with the important transition to high school looming, we drew on material from the original positive thinking and social life skills programs to develop modules that targeted those skills. Previous research with the original Aussie Optimism intervention has demonstrated the short-term effectiveness of the social life skills program for improving social skills in 9- to 12-year-old typically developing children (Mills, 2007). The original optimistic thinking skills program requires verbal and reasoning skills that, even if simplified, were considered likely to be beyond the capacity of most 11- to 13-year-old students with intellectual disability, and thus components from that program were not included.

In addition to simplifying the language and reducing the complexity of concepts for the children with intellectual disability, various adaptations were made to program delivery. Instead of being packaged as an hourly session, each module was designed to be broken down into shorter sessions. Given their slower pace of learning, more limited capacity for sustained attention, and greater need for repetition to consolidate new learning, children with intellectual disability were expected to master content more effectively if each module was split across two or more shorter sessions during a single week. Some activities were changed to account for the fact that they would be presented to small groups of 2–6 children, rather than whole classes of 20–25 students. As it was anticipated that students with intellectual disability could have limited literacy skills, wherever possible student workbooks included the option of drawing pictures rather than writing.

The final version of the Aussie Optimism program for children with intellectual disability contains ten modules titled feelings, coping skills, problem solving, communication skills, social skills, assertiveness, negotiation, networks, friends and families, transitions and review. In the first module, students learn to identify and express their emotions in an appropriate manner, and to respect the opinions of others. The second module focuses on developing skills for coping with stressors and regulating emotions. Important skills in communication and problem solving are developed in the third and fourth modules. The next three modules help students to develop specific interpersonal relationship skills such as friendly habits, assertive ways of communicating, and negotiation. Children then learn to apply these skills to their peer and family relationships in order to develop networks and support. Finally, the skills learned during the program are reviewed and applied to situations relevant to the imminent transition to high school.

The ten modules are presented in a teacher resource book. There is a rationale and explanation of each topic, recommended and optional activities, key messages, resource sheets, student practice exercises and parent information sheets. At the conclusion of most modules there are ideas for supporting students to achieve outcomes and apply the skills and concepts across learning areas. A separate student resource book contains exercises and activities, along with key messages and homework tasks. Delivery of the program involves a range of methods including teacher demonstration, class discussion and brainstorming, role-playing, group and pair activities, and individual support if required.

## *Procedures*

Ethical approval was obtained from both participating universities and from the education systems within each state. Written permission was provided by parents and children were asked to provide consent at each data collection point.

Pilot testing of the questionnaires to be used in the research occurred with a subset of the participants prior to commencement of the main study. Minor wording changes were subsequently made to the measures (Gilmore, Shochet, Campbell, & Roberts, 2010) to enhance their usability for children with intellectual disability. This process was followed approximately 3–6 months later by collection of Time 1 pre-test data with the entire sample. The questionnaires were administered individually to each child at school by a psychologist or research assistant who was experienced in working with children with intellectual disability. In addition to the minor wording changes to some questionnaire items, various adjustments were made in administration to maximize children's comprehension and ability to provide valid answers. These adjustments included the use of pictorial representations of Likert scales, a slower than usual pace when presenting questions, and repetitions whenever necessary.

Teachers from the special education units in each school were invited to intervention training sessions that were held at the universities in either Brisbane or Perth. Training took one full day and was followed by additional support from the trainers on request from individual teachers. Each teacher was provided with a teacher resource manual, workbooks for students, and information sheets for parents.

The intervention commenced approximately 1 month after Time 1 data collection and, in the majority of schools, extended across 10 consecutive weeks. The intervention was designed so that each of the ten modules could be split into two or three separate sessions within a single week. Feedback from teachers showed that the majority split the modules in this way, while a few presented each module in a single session. Thus, unless children were absent from school on the particular days when the intervention ran, most completed 20–30 sessions that lasted from 10 to 30 min. Each child was given a workbook. Teachers kept records of class attendance, documented progress, and noted any issues arising.

Time 2 post-test data were collected approximately 2–6 weeks after the intervention concluded. Administration of questionnaires again took place in the child's school via individual interviews. Approximately 6 months later, Time 3 post-test data were collected. At this point the majority of students had transitioned to high school within the past 8–12 weeks. They were seen individually by a research assistant in their schools.

## Evaluation of the Intervention

### *Resilience*

The potential impact of the intervention on children's resilience was evaluated using the RSCA. Total scores on the Mastery, Relatedness and Emotional Reactivity scales are shown in Table 16.1 for the 78 children who completed the RSCA at all three time points (Time 1 pre-test, Time 2 post-test, Time 3 post-test). Using repeated measures analyses there was a significant effect for time on Emotional Reactivity, $F\ (2,75) = 3.516$, $p < .05$, partial eta squared = .086, with both groups demonstrating reduced levels of reactivity from Time 1 to Time 3, but no significant intervention effects.

**Table 16.1** Means and standard deviations for intervention and control groups on all RSCA scales and subscales at the three time points

| Scale | Subscale | Time | Intervention: $n=44$ | Control: $n=34$ |
|---|---|---|---|---|
| Mastery | | T1 | 55.77 (15.92) | 52.71 (14.21) |
| | | T2 | 56.91 (12.68) | 50.62 (14.96) |
| | | T3 | 54.66 (16.24) | 50.26 (12.86) |
| | Optimism | T1 | 19.91 (6.05) | 19.29 (5.72) |
| | | T2 | 21.05 (5.34) | 18.35 (5.93) |
| | | T3 | 19.61 (6.21) | 17.97 (5.28) |
| | Self-Efficacy | T1 | 27.05 (8.45) | 25.50 (7.79) |
| | | T2 | 26.52 (6.92) | 23.79 (8.20) |
| | | T3 | 25.89 (8.77) | 23.88 (6.75) |
| Relatedness | | T1 | 68.37 (20.76) | 67.32 (16.22) |
| | | T2 | 73.09 (19.17) | 64.85 (18.38) |
| | | T3 | 70.63 (19.08) | 66.03 (16.91) |
| | Trust | T1 | 20.56 (6.43) | 20.15 (5.94) |
| | | T2 | 21.00 (6.04) | 19.65 (5.91) |
| | | T3 | 20.47 (6.45) | 19.53 (5.50) |
| | Support | T1 | 18.20 (5.65) | 18.65 (4.26) |
| | | T2 | 19.48 (5.16) | 16.88 (5.41) |
| | | T3 | 18.52 (5.12) | 17.56 (4.49) |
| | Comfort | T1 | 11.14 (4.13) | 10.15 (4.08) |
| | | T2 | 11.73 (3.92) | 10.71 (3.71) |
| | | T3 | 11.27 (3.90) | 10.41 (3.98) |
| | Tolerance | T1 | 18.53 (6.43) | 18.38 (4.89) |
| | | T2 | 20.88 (5.88) | 17.62 (5.53) |
| | | T3 | 20.33 (5.68) | 18.53 (6.18) |
| Reactivity | | T1 | 34.60 (21.13) | 35.65 (16.23) |
| | | T2 | 34.86 (19.82) | 36.29 (15.90) |
| | | T3 | 30.95 (21.23) | 30.76 (18.29) |
| | Sensitivity | T1 | 12.32 (6.86) | 12.00 (4.74) |
| | | T2 | 13.02 (6.65) | 12.71 (5.36) |
| | | T3 | 11.41 (6.71) | 11.06 (6.28) |
| | Recovery | T1 | 4.34 (5.06) | 5.38 (5.18) |
| | | T2 | 4.18 (4.91) | 4.59 (4.63) |
| | | T3 | 3.68 (4.81) | 3.65 (4.57) |
| | Impairment | T1 | 17.93 (11.63) | 18.26 (9.72) |
| | | T2 | 17.66 (11.29) | 19.00 (9.41) |
| | | T3 | 15.85 (11.60) | 16.06 (10.19) |

Because raw scores on Relatedness appeared to show different patterns for the two groups, the four subscales (Trust, Support, Comfort, Tolerance) were examined separately. The intervention and control groups displayed very similar patterns of scores on two of the subscales (Trust and Comfort), but differences were evident for Tolerance and Support. Repeated measures analysis of these two subscales showed a trend towards significant intervention effects ($p=.09$) for Tolerance and a significant time × intervention effect for Support. For the latter analysis, Mauchley's test indicated a violation of the assumption of sphericity; thus degrees of freedom were calculated using Huynh–Feldt Epsilon, $F\ (1.86,47.656)=3.195$, $p<.05$, partial eta squared = .04.

**Table 16.2** Means and standard deviations for intervention and control groups on mental health measures at the three time points

| Scale | Time | Intervention:<br>$n=50$ SDQ<br>$n=44$ RCMAS<br>$n=50$ IDMS<br>$n=48$ MAF | Control:<br>$n=40$ SDQ<br>$n=40$ RCMAS<br>$n=40$ IDMS<br>$n=38$ MAF |
|---|---|---|---|
| SDQ | T1 | 18.26 (6.05) | 16.05 (5.56) |
| | T2 | 17.06 (5.18) | 16.30 (5.60) |
| | T3 | 15.70 (6.70) | 15.80 (6.49) |
| RCMAS | T1 | 16.20 (6.93) | 15.75 (6.90) |
| | T2 | 16.45 (6.67) | 14.33 (7.08) |
| | T3 | 14.70 (7.69) | 12.30 (6.93) |
| IDMS | T1 | 15.12 (8.18) | 13.95 (6.87) |
| | T2 | 14.66 (7.50) | 13.28 (6.73) |
| | T3 | 12.64 (7.41) | 12.33 (6.86) |
| MAF | T1 | 9.40 (6.38) | 9.00 (6.22) |
| | T2 | 9.42 (6.34) | 7.84 (5.72) |
| | T3 | 8.13 (6.84) | 6.87 (5.55) |

### *Mental Health and Well-Being*

Repeated measures analyses were conducted for the four measures of mental health and well-being (SDQ, RCMAS, IDMS and MAF). Between 84 and 90 of the 110 children completed each questionnaire at all three time points. There were significant effects for time on all measures apart from the SDQ, with fewer difficulties reported over time. However, there were no significant intervention effects. All means and standard deviations are shown in Table 16.2.

The four mental health measures correlated significantly and positively at all time points (Time 1: $r=.50$ to .63; Time 2: $r=.46$ to .63; Time 3: $r=.53$ to .73). In addition, there were some significant relationships between mental health and resilience. In particular, there were strong positive correlations of RSCA Emotional Reactivity with all four measures of mental health at all three time points (correlations ranging from .52 to .68). There were also some significant negative correlations of RSCA Mastery and Relatedness with mental health problems, although these relationships were weaker (from −.20 to −.40) than those for Emotional Reactivity.

## Discussion

At the beginning of this chapter, we highlighted the vulnerability of children with intellectual disability, in particular their vulnerability to comorbid psychiatric disorders. Not all children develop mental health problems such as anxiety and depression, but the factors that are protective have not yet been clearly described for this population. There is no doubt that there are many established preventive interventions which work for children with typical intelligence. We have described the way in which one of these established interventions has been adapted to make it more suitable for implementation with children with intellectual disability. Targeting specific protective factors that are likely to be more elusive for children with intellectual disability, we extracted appropriate content from Aussie Optimism to create a ten-module program. The method of delivery was modified for the needs of children with intellectual disability through the incorporation of shorter chunks of material, simpler concepts, concrete activities and repetition of material.

In addition to this careful adaptation of an existing evidence-based intervention, our study design had a number of other notable strengths. These included the randomized controlled trial across two Australian states, and the piloting and minor adaptation of established measures of resilience and mental health for evaluating the intervention at the end of the program and again approximately 6 months later following the children's transition to high school. The sample size was reasonable for a low-population country like Australia, and we managed to retain 94 of the 110 participants across the three phases of the study.

We found a significant intervention effect for the protective factor of support, with a trend towards significance also for tolerance, but not for the other variables. It seems that the intervention had positive benefits for these two aspects of social relatedness. Children in the intervention group reported significantly more confidence that support would be available from their friends or families if they needed it. They responded more positively to questions such as *There are people who love and care about me, If I get upset or angry, there is someone I can talk to*, and *If something bad happens, I can ask my friends for help*, suggesting that the intervention increased their awareness of the availability of help. This awareness potentially increases their likelihood of seeking help for problems, reduces anxiety and strengthens feelings of connectedness to others. Perceptions about the availability of social support have been linked to psychological well-being in a range of studies with children (e.g., Okawa et al., 2011) and adults (e.g., Brannan, Biswas-Diener, Mohr, Mortazavi, & Stein, 2013; Guerette & Smedema, 2011), including those with intellectual disability (Lunsky & Benson, 2001). As mentioned earlier, the intervention had a strong focus on social competence. Key messages such as "It's OK to talk about my feelings with others that I trust" and "Nothing is so awful or so little that we can't talk about it with someone" are woven through the program. In the networks module, students become aware of the people within their environments who can provide various types of support as they develop their own "circle of help". They then practise skills for making friends and expanding their social networks.

We have previously identified tolerance as an aspect of resilience that differentiates children with intellectual disability from their typically developing peers (Gilmore et al., 2013) and there was a trend towards significant improvements in this protective factor for the intervention group. Children with intellectual disability are likely to have some difficulty with accepting and tolerating differences in other people because of their more limited capacity to recognize and respond to the perspectives of others. The intervention included activities such as identifying the feelings of other people, listening to others, negotiating a fair deal, and saying nice things. These exercises may have enhanced the children's capacity to consider and understand the viewpoints of others. The improved tolerance they reported would be of considerable benefit to the overall quality of their social relationships.

The finding that reactive behaviours and mental health problems appeared to reduce across the timeframe of the study is intriguing, given that the transition to high school is often associated with increases in anxiety and depression for typically developing students (Waters, Lester, Wenden, & Cross, 2012). However, for children with intellectual disability, the move to a new and unfamiliar environment where they were the youngest students may have dampened the emotional reactivity they experienced as the oldest children in the final year of primary school. Given the challenges associated with the transition to high school, it is unclear why children's moods and feelings improved and anxiety levels dropped. Perhaps the anticipation of challenges ahead was more stressful than the actual reality for many children, or the sharing of new experiences with others who were feeling similarly worried or confused may have lessened individual stress. Schools tend to be very aware of the need to support all students in the transition to high school. Various whole-class activities (e.g., buddy systems that match up new and senior students) are often used to ease discomfort or anxiety. Unfortunately, only 15 parents responded to our request for information about how their child was doing at high school. Although some were reportedly struggling with social and behavioural issues and a few had experienced anxiety or sadness initially, the majority were said to be enjoying their new school. Post-testing was conducted only 2–3 months into the high school year, however, and it is likely that mental health could deteriorate as the year progressed if students experienced increasing difficulty with academic work, an accumulation of failures and/or social exclusion.

Although it is disappointing that the intervention group did not make significant gains in other areas, in retrospect this is not surprising. We chose to intervene with a group of children whose development was compromised not only by intellectual disability, but also in most cases by some degree of social and economic disadvantage. For a substantial proportion it was likely that their intellectual disability was inherited and thus that the life opportunities and experiences of their parents had been limited in various ways, such as in relation to education and employment. In addition, during the progress of the study, children disclosed a range of adverse life events, such as parental mental illness, conflict, or incarceration. The prevention science literature classically recognizes the potential importance of the public benefits provided by even small effects (Rose, 1992). Given the likelihood that many children in our sample had well-established and enduring risk factors in their lives, the small effects we achieved in a short-term school-based intervention are clearly important. Previous research has demonstrated the association of perceived social support with positive mental health (Carlton et al., 2006; Stewart & Suldo, 2011). We may thus reasonably expect that the increased perceptions of social support in our intervention group will lead to future improvements in their mental health and well-being.

Emerson and Hatton (2007) have highlighted the importance of focusing not only on increasing the personal resilience of children with intellectual disability, but also on reducing their exposure to social and environmental risk factors. While we were able to attempt the first, it was not possible to address the many environmental risk factors faced by children in the sample. School-based programs are limited in their ability to incorporate risk factors that exist outside of the school context. Although the most effective interventions are those that target multiple contexts, incorporating family-based components is challenging, especially in low socioeconomic areas. Indeed, even our attempts to engage parents with the intervention via the use of parent questionnaires and reports failed dismally due to the low response rate, and teachers often reported deciding against involving parents because they believed activities would not be followed up at home.

Overall, although randomized controlled trials are considered to be "the building blocks of evidence-based practice" (Maughan, 2013, p. 225), they are methodologically challenging and the results of even the most robust trials of mental health interventions can sometimes be disappointing (e.g., Sawyer et al., 2010). The literature abounds with examples of intervention challenges, such as retention of participants and maintenance of effects (e.g., Murfield, Cooke, Moyle, Shum, & Harrison, 2011; Oliver et al., 2002). Although at this stage we are unable to determine the extent to which our intervention will have enduring benefits for the children in our sample, the achievement of significant short-term effects in an intervention adapted specially for children with intellectual disability is an important contribution that we hope will stimulate further research.

## Reflections to Guide Future Research

It is very encouraging that, despite the challenges associated with providing successful interventions for vulnerable children, we found some significant intervention effects. It is important nonetheless to reflect on the difficulties we encountered in implementation and evaluation that may to some extent have limited the program's effectiveness, and which would be valuable to address when planning future research.

### *Program Implementation Issues*

Findings from a range of school-based prevention and intervention programs have demonstrated that quality of program implementation can significantly affect outcomes (Durlak & DuPre, 2008). Program integrity, or fidelity, refers to the extent to which an intervention is implemented as intended, and assessing program integrity is considered to be an essential part of program evaluation (Lendrum & Humphrey, 2012).

Evidence from teacher reports suggests that the program was not always fully delivered as planned, even though we provided special training, detailed intervention manuals, progress sheets, and support from the researchers when requested. Some teachers implemented the intervention more enthusiastically and more conscientiously than others, a variable that was impossible to control without substituting researchers as the program facilitators. Program fidelity was also occasionally compromised by significant changes in school staff, with one Brisbane school having three different teachers for the special education class across the period of the intervention.

On reflection, we recognize that we should have made more determined efforts to monitor program integrity. While some teachers were very diligent about reporting on program implementation, others were much less reliable. Operating the program across a smaller number of schools would have enabled us to better oversee implementation, making fidelity checks easier to carry out. Unfortunately, the situation in Australia presents challenges for obtaining sufficiently large samples of children with intellectual disability in a small number of settings, first because Australia has a low overall population and thus a relatively small number of available participants, and second because children with intellectual disability are accepted into all regular schools, and thus spread across a large number rather than being congregated in only a few.

In addition, we know that some children were not present for all sessions, and even if present their level of engagement may have been insufficient for them to benefit from the intervention. As illustrated in the following report from a teacher's progress sheet, program implementation did not always go smoothly: *Steven refused to attend, Jamie was very boisterous and uncooperative, Christie and Nathaniel were tormenting each other.*

We know from teacher reports that some components of the intervention seemed to work very well, while others were problematic. Consistently teachers rated most highly the components that involved concrete tasks and physical participation (e.g., an exercise about crossing the crocodile river with a magic stone, block construction for communication, and role plays such as "saying it straight"). At times, they reported the need to further simplify or clarify concepts in the program. Accommodating and adjusting to the different levels of ability within the group was sometimes challenging, especially when reading and writing were required. Many teachers were creative in their approaches to encouraging children's participation in such activities, using butcher's paper for group writing tasks, and adding puppets and puzzles to make writing activities more interesting.

A continual comment from teachers related to the need for more time for mastering topics. Running the intervention across an entire school year would have been preferable. It has been shown that, even for typically developing children, interventions need more than 40 lessons to successfully develop social skills (Denham & Almeida, 1987). Occasionally, difficulties with team work and group discussion were noted, and some teachers found the materials too complicated or the concepts beyond the understanding of their students. In particular, children reportedly had difficulty generating a list of their own problems, understanding compromise, or initiating "glad", "sad" or "mad" solutions to problems.

## Evaluation Issues

Although we had piloted the measures to be used for program evaluation, and subsequently made minor wording changes and modifications to administration procedures, some children in the sample were unable to complete one or more of the questionnaires because of poor comprehension, distractibility during administration, or uncooperativeness. When researchers had concerns about perseverative responding, prompts were generally used to encourage a child to consider all response options, but persistent perseveration still occurred at times. Similarly, the encouragement and prompts that were used when children were unresponsive, uncooperative or inattentive did not always result in usable data.

While we cannot be absolutely certain that there were no subtle comprehension problems or patterns of responding that were overlooked, the strong internal consistencies and significant correlations among measures in the expected directions have led us to conclude that the measures worked satisfactorily for the children whose data were included in analyses. However, measurement issues are an ongoing concern for researchers in the field of intellectual disability. Assessing aspects of mental health and well-being in this population is a challenging undertaking because measurement relies on self-reporting about one's inner states and because individuals with intellectual disability have a tendency to be acquiescent (Carlin et al., 2008). The children in our study who were unable to complete the questionnaires were probably functioning at a lower level cognitively and behaviourally; consequently they may have been the most vulnerable ones in our sample.

## Summary and Conclusions

We adapted an established resilience-building intervention specifically for children with intellectual disability, and trialled the intervention in a sample of children who were preparing to make the important transition to high school. At this time, all children are vulnerable, but children with intellectual disability even more so because of their cognitive limitations and associated difficulties in areas such as attention, flexibility, problem solving and social skills.

Evaluation of the intervention in a randomized controlled trial across two Australian states showed a significant intervention effect for the protective factor of support, and a trend towards significance for tolerance. These effects were achieved despite the relatively short timeframe of the intervention, and some issues with program implementation and evaluation. Social relatedness is an area that is problematic for many children with intellectual disability, yet critical for many aspects of functioning and well-being, and likely to be an important protective factor for mental health. Effective interventions are imperative to prevent the chronic comorbidity of intellectual disability and psychopathology in this vulnerable group.

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