Paper title

The Efficacy of 'Hopeful Minds': Can teaching Hope improve well-being and protective factors in child and early adolescent groups?

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Abstract

The present study examined the efficacy of Hopeful Minds, a 12 week hope based school intervention programme in a sample of 153 pre- and early- adolescent secondary school children (11-14 years) in the North West of Ireland. This study used a one-group, pretest-posttest design to determine whether participants experienced changes regarding their hope, well-being, and a range of known protective factors. Results from a Wilcoxin Signed Ranks test showed significant increases in children's hope scores post intervention. Resilience and adaptive coping skills of stoicism and social support seeking were also significantly improved. Although improvements in well-being or emotional regulation/arousal scores were observed, results were non-significant. Further analysis examined associations between hope and a range of well-being and protective factors using linear regression. Hope was found to be significantly associated with improvements in each of the well-being scores of anxiety, depression,resilience, positive emotion, reduced negative emotion, emotional control, stoicism, social support seeking and self-care. No associations were found between hope and rumination. This study, builds upon the extant evidence for the implementation of the Hopeful Minds school based intervention. Further, the study demonstrates that teaching and thereby increasing hope has a significant positive impact on child and adolescent well-being and a range of protective factors; factors known to buffer against mental ill health and suicide.

Introduction

Internationally 10-20% of children and adolescents experience mental health disorders and furthermore half of all mental illnesses begin by the age of 14. Indeed, evidence has demonstrated that the onset of mental health disorders peaks during the adolescent and early adult years (Kim-Cohen et al., 2003; Kessler, Berglund & Demler, 2005).

Within Northern Ireland, epidemiological data on the prevalence of mental ill-health in children and young people is scarce. The Department of Health, Social Services and Public Safety (2016) estimate that around 45,000 children and young people in Northern Ireland have a mental health need at any one time and more than 20% of young people suffer "significant mental health problems" before they reach the age of 18. In the Republic of Ireland, research reported that 31.2% of people are likely to have experienced some type of mental health disorder by the age of just 13 years (Cannon, Coughlan, Clarke, Harley & Kelleher, 2013).

Poor mental health has a known negative impact on the broader health and development of adolescents and is associated with numerous negative health and social outcomes such as higher alcohol, tobacco and illicit substances use, adolescent pregnancy, and school dropout and delinquent behaviours (WHO, 2016). Fergusson and Horwood (2003) found that developing any mental health problem in adolescence can also increase the risk of developing other mental health problems in adulthood.

There are a number of known protective and preventative factors that decrease the likelihood of mental health problems developing. One such protective factor, which has a growing evidence base, is the concept of hope. Hope Theory (Snyder, 2000), is based on an individuals expectancy that goals can be reached, alongside cognitions about one's resolve to achieve the goal, and the strategy for achieving it. Hope is described by Snyder et al. (1991, 2000) as a cognitive motivational state involving the formation of goals, pathways and a sense of agency (Rand & Cheavens, 2009). Hence three separate but related components are expressed in the definition of hope as (a) goals; anything that an individual has a wish to get or reach, (b) pathway thinking; producing different or possible ways and planning routes to reach these goals and (c) agency thinking; the propensity to develop and sustain motivation to attain goals.

Research suggests that people with higher levels of hope are able to cope better with stressful life events (Ciarrochi, Heaven & Davies, 2007; Horton & Wallander, 2001; Valle, Huebner & Suldo, 2006). Furthermore, hope has been found to be negatively associated with symptoms of depression (Ashby, 2011; Kwon, 2000; Snyder, et al., 1997; Thimm, Holte, Brennen, & Wang, 2013) and positively associated with personal adjustment, academic achievement, participation in structured extracurricular activities (Gilman, Dooley, & Florell, 2006), school involvement, social support (Dubow, Arnett, Smith & Ippolito, 2001), self-worth (Harter & Whitesell, 2003; Snyder et al., 1991), optimism, problem-solving skills (Snyder et al.,1991), and social competence (Barnum, Snyder, Rapoff, Mani, & Thompson, 1998).

Despite consistent findings that hope is linked o a reduction in anxiety symptoms (Arnau, Rosen, Finch, Rhudy, & Fortunado, 2007; Chang et al., 2015; Chang, Yu, Chang & Hirsch, 2016; May, Hunter, Ferrari, Noel, & Jason 2015; Venning, Kettler, Zajac, Wilson & Eliott, 2011), there is one study that didn't find a relationship. Simon, Barakat, Patterson & Dampier (2009) found no correlation between hope and anxiety in an adolescent clinical sample.

More recent research is emerging which has shown that levels of hope can be increased. A meta-analysis of twenty seven hope intervention studies (Weis & Speridakos, 2011) found a small but significant increase overall in levels of hope in clinical and community samples (e.g., at risk youths, college students and a community sample: Berg, Snyder & Hamilton, 2008; Cheavens, Feldman, Gum, Michael & Snyder, 2006; Kirschman, Roberts, Shadlow & Pelley, 2010). Studies have shown that following these interventions participants showed improvement in a range of mental health and wellbeing measures (Howell, Jacobson & Larsen, 2015; Klausner, Snyder & Cheavens, 2002; Pretorius, Venter, Temane & Wissing, 2008). Of note, some studies have reported no changes in psychological distress measures including anxiety and depression as a result of hope based interventions (Weis & Speridakos, 2011; Marques, Pais-Ribeiro & Lopez, 2009).

Research has suggested that early adolescents exhibit a significant decline in hope levels compared to children and older adolescents (Ciarrochi, Parker, Kashdan, Heaven, & Barkus, 2015; Venning, Kettler, Eliott & Wilson, 2009) as such, early adolescence may represent an ideal time for participation in programmes that foster hope. Marques and colleagues (2011) examined the effectiveness of a 5 week hope intervention in a sample of Portuguese preteen children, and found that there was a significant improvement in hope. However, in general, a dearth of research exists on hope enhancement interventions with early and pre-adolescence.

A novel programme, known as Hopeful Minds (Goetzke, Tate, Patel & Lewis, 2014) (www.hopefulminds.org), which is based on hope theory (Snyder, 2000), could potentially provide early and pre-adolescents with opportunities to build psychological and emotional resources necessary to pursue healthy pathways toward a stable and successful adulthood. This study aims to evaluate the efficacy of the hopeful minds school based programme in enhancing children's levels of hope, alongside other known wellbeing and protective factors, such as resilience, emotional regulation/control and coping skills.

In this context, it is predicted that raising levels of hope can simultaneously and independently raise levels of resilience, coping skills and emotional regulation in young people. *Resiliency* is derived from the Latin word resilio and means 'to jump back' (Rutter, 2006), and is defined as a '*set of behaviours over time that reflect the interactions between individuals and their environments, particularly the opportunities for personal growth that are available and accessible'*. (Ungar, 2012, pg 14). *Emotional regulation* refers to emotional arousal and ability to control emotionally heightened states. Emotion Arousal refers to the degree to which an individual experiences emotion (e.g., intensity, frequency). Regulation or control refers to attempts to change or maintain one's level of emotional arousal (Walden, Harris & Carton, 2003). *Coping skills,* according to Lazarus and Folkman (1984), consists of two components. Firstly, it is problem-focused, aimed at altering the stressful situation or managing the stressful issue; and secondly, it is emotion-focused, involving the modification or control of the emotions related to the issue.

It is hypothesised that following the hopeful minds programme, children's (a) scores of hope will significantly increase, (b) levels of depression and anxiety will significantly reduce and, (c) measures of resilience, emotion regulation and coping skills will significantly improve. Additionally, this study aims to explore hopes' relationship with each of the study variables. It hypothesises that hope at post-test will significantly predict variance in resilience, depression, anxiety, emotion regulation and coping skills.

Method

Design

This study utilised a pretest-posttest group design, consisting of measures of scores at two levels (pre and post programme). The variables to be measured within this study were hope, depression, anxiety, resiliency, emotion regulation and coping skills.

Measures

Hope. The Children's Hope Scale (CHS), (Snyder et al, 1997) is a scale developed to measure levels of hopeful thought in children ranging in age from 8 to 16. The scale is comprised of six items that measure pathways thinking (3 items) and agency thinking (3 items). Respondents are asked to indicate how often each item describes them using a scale ranging from 1 (none of the time) to 6 (all of the time). The items can be summed to create both subscale scores and overall hope scores. The authors of the scale have demonstrated adequate internal consistency (ranging from $\alpha = .72$ to $.86$) and temporal stability (test-retest correlations of .71 to .73 over 1 month).

Depression. The Centre for Epidemiological Studies Depression Scale for Children (CES-DC) (Weissman, Orvaschel, & Padian, 1980) is a 20-item self-report measure of depressive symptoms for children and adolescents with scores ranging from 0 to 60. Each item is rated on a 4-point Likert scale in terms of its frequency, during the last week, from "Not At All"=0 to "A Lot"=3 on items such as "I was bothered by things that usually don't bother me". It is calculated by summing up all the items

(with 4, 8, 12 and 16 reversed scored), higher totalled scores reflect higher levels of depressive symptomatology. The psychometric properties of the CES-DC have demonstrated good validity and reliability, with Cronbach's alphas ranging from .71 to .91 (Barkmann, Erhart, & Schulte-Markwort, 2008; Li, Cheung, Chung, & Ho, 2010).

Anxiety. Anxiety was measured using the Generalised Anxiety Disorder (GAD) 6-item sub-scale from the 44-item Spence Children's Anxiety Scale (Spence, 1998). The scale is a self-report measure of anxiety originally developed to examine anxiety symptoms in children aged 8–12 years. Participants are asked to indicate frequency in which each symptom occurs on a four-point scale ranging from ''Never to Always' (e.g., 'When I have a problem, my heart beats very fast'). Higher totalled scores reflect higher levels of GAD symptomatology. Previous studies have demonstrated high internal consistency, high concurrent validity with other measures of child and adolescent anxiety, and adequate test–retest reliability (Orgilés, Spence, Marzo, Méndez & Espada 2014). The

internal consistency of the GAD sub-scales was also found to be acceptable in previous studies, with a coefficient alpha of .77 (Spence, Barrett & Turner 2003).

Resilience. The Child and Youth Resilience Measure 28 (CYRM-28) (Ungar & Liebenberg, 2011) is a 28 item, culturally sensitive screening tool and it was used to explore psychosocial resources available to the participants. Respondents are asked to what extent do the sentences below described them (e.g. 'I know where to go to get help'), rated on a three-point Likert scale 'No', 'Sometimes' or 'Yes'. The scale measures three areas; individual, caregiver and contextual resilience, with higher scores indicating greater resource availability. Good internal consistency has been reported for the scale α= .88 (Libenberg, Unger & Vijver, 2012).

Emotion Arousal/Regulation. How I Feel (HIF) (Walden, Harris, & Carton, 2003), designed for children between 8 and 12 years of age, was used to measure participant"s emotional arousal and regulation of primary school participants. The scale consists of 30 items concerning the frequency, intensity and control of excitement, happiness, fear and anger. It contains the three sub-scales, positive emotion, negative emotion and emotion control. Respondents are asked to rate on a 5-point scale ranging from 'not at all true of me' to 'very true of me', the extent to which statements such as 'I was in control of how often I felt happy' were true over the previous three months. A recent study by Ciucci et al. (2016), further supported of the reliability and validity of the scale, and found good internal constancy of the three sub-scales; positive emotion ($\alpha = .87$), negative emotion ($\alpha = .89$), and emotion control ($\alpha = .84$).

Coping. The Measure of Adolescent Coping Strategies (MACS) (Sveinbjornsdottir & Thorsteinsson, 2008) was used to measure participants coping strategies. Respondents are asked to think of a stressful situation that they have experienced during the recent past (i.e. something that happened at school, in their family, relations with other people, or their health) and answer questions relating to how often they used different methods of coping in this situation (e.g. 'I talked to someone who could act in some way to change the situation'). The scale consisted of 34 items rated on a four-point Likert scale, ranging from 'I did not use' to 'I use almost all of the time'. Four subscales were

utilised from this scale measuring three 'adaptive' coping skills (self-care, distraction and seeking social support) and one maladaptive coping strategy (rumination). Higher total scores in each of the subscales indicate greater use of that coping strategy. Adequate internal consistency for each of the sub-scales is reported, ranging from α=.70 to .81 (Sveinbjornsdottir & Thorsteinsson, 2014).

Programme

Hopeful Minds, designed by Goetzke and colleagues (2014) is a hope based, universal mental health promotion programme. The focus of the programme is to teach students the social and emotional learning tools to develop and maintain "hope". The programme consists of 12 core lessons:

Lesson 1 What is hope	Lesson 2 Why is hope important
Lesson 3 The brain and hope	Lesson 4 Creating a hopeful mindset
Lesson 5 Having a hopeful purpose	Lesson 6 Hopeful goals and pathways
Lesson 7 Reviewing hope	Lesson 8 A hopeful approach to change
Lesson 9 Finding hope after failure	Lesson 10 Shifting rumination through hope
Lesson 11 Challenges to hope	Lesson 12 Giving hope

This activity based programme is facilitated once a week by trained teachers or volunteers who underwent a two day Hopeful Minds facilitator training workshop.

Participants

The study consisted of N=153 secondary school children aged 11-14 with mean age of 12.4 years (*S.D.* = .70) living in the North West of Ireland who took part in the Hopeful Minds school based

programme. Within this group, males represented nearly two thirds of the sample (64.5%). Additional demographic and lifestyle factors that were measured showed that the large majority of the children were from two parent families (91.%) and a very low proportion of the children in this sample reported not exercising outside of school (3.9%).

Sampling Procedural Details

Ethical approval for the study was agreed by the University Research Ethical Committee. Consent to undertake the study within the school environment was sought from the school principals, each principal received a participant invitation letter, a school participation letter and consent form outlining the study details. Prior to commencement of the Hopeful Minds Programme, all participants received an information pack containing an information document outlining the purpose of the study and a consent form to be completed by their parents. Before the programme commenced, pen and paper questionnaires were completed in the school classroom, by those participants with parental consent. Written instructions for completion were detailed on each questionnaire, participants were also given verbal instructions and completed the questionnaires with supervision by either a teacher or a member of the research team. Post-programme questionnaires containing the same measures were redistributed to all participants at the end of the 12 week programme using the same protocol as the pre-test questionnaires. The researcher collected the completed questionnaires immediately after completion. They were then stored in a locked filing cabinet. A detailed debrief letter was issued to all child participants sign posting to professional help inside and outside of school-see appendix. No issues were raised by any child or parent.

Data Handling and Analytical procedure

Data was entered in to a password secured SPSS file (version 25, IBM Corp, 2017). Data was coded, cleaned and prepared for analysis. Prior to analysis, to prevent data loss, missing values were replaced with series means. Furthermore, as outliers were detected in a number of the variables

winsorization was performed at the 95th percentile to allow for preservation of the power of the study whilst reducing any extreme outliers (Liao, Li & Brooks, 2016).

To test hypothesis one (which was that following the hopeful minds programme, children's (a) scores of hope will significantly increase, (b) levels of depression and anxiety will significantly reduce and, (c) measures of resilience, emotion regulation and coping skills will significantly improve), a Wilcoxin Signed Rank test was used. Examination of histograms and plots revealed non normal distribution within some of the study variables. Consequently, they did not meet the necessary assumption for an analysis of means through paired samples t-tests, accordingly non-parametric Wilcoxin Signed Rank test was utilised.

To test hypothesis two (hope at post-test will significantly predict variance in resilience, depression, anxiety, emotion regulation and coping skills), a series of multiple regression analysis was used. Preliminary tests were undertaken before a series of regression analyses were conducted. The scatterplot of standardised predicted values verses standardised residuals showed that the data met the assumptions of homogeneity of variance and linearity. Despite non-normality of the study variables, examination of the Q-Q plots of the residuals showed no issues with normality of the residual scores. Furthermore no issues of multi collinearity were discovered, as such regression analysis was deemed acceptable.

Results

The first study hypothesis predicted that there would be a significant improvement in resilience, depression, anxiety, emotional regulation and coping skills between Time One and Time Two. The results of these comparisons are summarised in Table 1. As Table 1 shows, there was a statistically significant increase in hope scores between Time One (Mdn = 24.3) and Time Two (Mdn = 25.1), (Z = -2.65, $p < .05$) and an increase in resilience scores between Time One (Mdn = 76.5) and Time Two (Mdn = 77) ($Z = -2.03$, $p < .05$). Scores for both depression ($Z = -1.21$, $p = .23$) and anxiety ($Z=-1.50$, $p = .13$) report no significant change. Further, no significant changes were reported for emotional regulation (negative emotion, positive emotion, emotional control), ($p > .05$). From the MAC coping scale subscales statistically significant improvements were found in stoicism scores between Time

One (Mdn = 22) and Time Two (Mdn = 22.4) (Z = -3.36, p < .05) and social support seeking between

Time One (Mdn = 18.6) and Time Two (Mdn = 19.8) (Z = -2.96, p < .05), indicating that adaptive

coping mechanisms had improved. However no significant change were reported for rumination (Z =

-0.11, p = .91) or Self Care (Z = -2.96, p = .07). Effect sizes for the changes in scores were small

ranging from r = .12 to r = .19.

Table 1

Non Parametric descriptive statistics and Wilcoxin Signed Rank Test results for participant's outcome measures at Time One and Time Two (N=153).

	Time One		Time Two			
	Median	IQR (25-75%)	Median	IQR (25-75%)	Z	r
Hope	24.3	21-28	25.1	21-29.5	-2.65[*]	0.15
Resilience	76.5	74-80.7	77	73-79.2	-2.03[*]	0.12
Depression	12	7-17	13	7-17	-1.21	0.07
Anxiety	6	4-7	5.6	3-7	-1.50	0.09
ER Negative Emotion	21.	16-26	22	17-26	-0.86	0.05
ER Positive Emotion	28.2	23-34	29	24.5-33	-1.68	0.10
ER Emotional Control	30	25-37	31.7	27-37	-1.38	0.08
CS Stoicism	22	18.3-24	22.4	20-25.1	-3.36[*]	0.19
CS Rumination	13	10-15	13.1	11-15	-0.11	0.01
CS Social Support Seeking	18.6	15.4-22	19.8	17-23	-2.96[*]	0.17
CS Self Care	18	15-21	18.6	16.2-21	-1.80	0.10

Note: Statistical Significance: *p < 0.05 .

Prior to our second analysis a Pearson's Correlation was undertaken to investigate associations between hope and the criterion variables and the results of this analysis are presented in Table 2. This examination revealed that hope, was significantly correlated with all of the study variables with the exception of rumination. In the interest of parsimony, this variable was removed from further study. Hope's significant correlation coefficients ranged in strength from a moderate negative association with Anxiety (*r = -.33, p < .001)* to a strong positive association with social support seeking (*r = .55, p < .001)* and a strong negative association with depression (*r = -.55, p < .001)*. This indicated that hope was suitably correlated with the criterion variables for examination through multiple linear regression to be reliably undertaken.

Table 2

Descriptive and Correlation coefficients of control variables (Age, Dual Parent, Gender, Exercise), predictor variable (Hope) and the dependent study variables scales

		N	M	SD±%	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Age	153	12.42	0.70															
2	Dual Parent	116		81%	.213*														
3	Gender (Female)	152		35.3%	.123	-.043													
4	Exercise	153		96.1%	.170*	.193*	-.061												
5	Hope	153	25.11	4.94	.017	.177	.005	.237**											
6	Resilience	153	75.75	4.99	.146	.316**	.065	.295**	.385**										
7	Depression	153	13.23	8.34	.044	-.209*	.062	-.144	-.547**	-.376**									
8	Anxiety	153	5.52	2.99	.061	-.084	.185*	.050	-.330**	-.239**	.565**								
9	ER Negative Emotion	153	22.44	7.09	.035	-.090	-.001	-.011	-.400**	-.256**	.677**	.592**							
10	ER Positive Emotion	153	28.82	6.19	-.045	.210*	.133	.169*	.392**	.268**	-.414**	-.209**	-.239**						
11	ER Emotional Control	153	31.81	7.19	.035	.286**	.043	.206*	.491**	.296**	-.454**	-.273**	-.295**	.610**					
12	CS Stoicism	153	22.39	3.97	-.001	.176	.039	.257**	.452**	.210**	-.386**	-.104	-.253**	.499**	.480**				
13	CS Rumination	153	13.08	2.97	.030	-.069	.027	-.008	-.146	-.220**	.584**	.423**	.508**	-.152	-.179*	-.039			
14	CS Social Support Seeking	153	19.82	4.13	.028	.161	.111	.248**	.550**	.356**	-.451**	-.222**	-.381**	.382**	.470**	.527**	-.026		
15	CS Self Care	153	18.70	3.51	.002	.186*	.006	.245**	.406**	.295**	-.270**	-.083	-.201*	.277**	.427**	.541**	.047	.575**	-

Note: Statistical Significance: *p < 0.05, **p < 0.001

In order to test the second hypothesis, "*Hope at post-test will significantly predict variance in Resilience, Depression, Anxiety, Emotion Regulation and Coping Skills*", a series of multiple regressions were conducted. For each of the multiple regressions, hope was entered as the predictor and the demographic/lifestyle variables of age, gender, dual parenting and exercise were entered as control variables. The nine remaining study variables were singularly entered as the dependent variable in each the nine regressions. An alpha of .01 was used to avoid type 1 error.

Table 3

Summary of the nine regression analyses showing unique associations between hope and the study variables.

Criterion	R^2	F	β	B	t	SE	SR^2	CI 95% (B)	
								Lower	Upper
Resilience	.30**	9.22	.34**	.34	4.02	.09	.10	.18	.52
Depression	.37**	12.76	-.58**	-1.04	-7.3	.14	.31	-1.33	-.76
Anxiety	.43**	4.94	-.38**	-.24	-4.16	.06	.13	-.35	-.12
ER Negative Emotion	.17*	4.44	-.41**	-.61	-4.5	.14	.15	-.88	-.34
ER Positive Emotion	.52**	8.08	.43**	.58	5.05	.12	.17	.35	.81
ER Emotional Control	.39**	14.01	.55**	.80	6.96	.12	.27	-.57	1.0
CS Stoicism	.25**	7.56	.41**	.35	4.76	.54	.15	.20	.50
CS Social Support Seeking	.38**	13.37	.55**	.48	6.92	.07	.27	.34	.62
CS Self Care	.21**	5.92	.36**	.27	4.02	.07	.12	.14	.40

Note: Predictor =Hope. All models [df=(1,110)] controlled for Gender, Age, Dual Parenting and Exercise. SR^2 = the squared semi-partial correlations indicate the unique variance predicted by hope. Statistical Significance: *p < 0.01, **p < 0.001

The prediction model for each of the nine regression models were statistically significant and fit statistics are shown in Table 3. From the results of the regressions it follows that when controlling for the demographic and lifestyle variables of age, gender, dual parenting and exercise, hope was a

significant predictor of each of the study variables. Inspection of the squared semi-partial correlations (Table 3.) shows hope accounting for a unique variance of between 10% for resilience with an R^2 of .30 and 31% for depression with an R^2 of .37. This suggests that a large amount of the variation in these scores is unaccounted for.

Examination of the beta weights indicates that, compared to the other study variables depression is most strongly predicted by hope ($\beta = -.58$, $p < .001$) and, although still statistically significant, hope shows the least predictive capacity for resilience ($\beta = .34$, $p < .001$). The resulting coefficients, shown in Table 3, suggest that every one unit increase in the hope score corresponds to a decrease of 1.04 in Depression scores, an increase of .34 in Resilience scores and a reduction of 0.24 in anxiety scores. This indicates that the greater a child's level of hope, the greater their mental wellbeing and resilience.

Examination of hope's influence on emotional regulation subscales suggests that every increase in hope scores corresponds to an increase in scores of emotional control by .80, positive emotion by 0.58, and a reduction in negative emotion by 0.61. This suggests that higher hope leads to greater emotional regulation skills.

The influence of higher hope on a child's adaptive coping mechanisms was also evidenced in this sample, showing association with increases in social support seeking by .48, stoicism by .35, and self care by .27 units.

Discussion

This study sought to investigate the efficacy of Hopeful Minds, a 12 week, hope based school intervention programme. It sought to fulfil two main aims (1) To examine changes in hope, wellbeing, and protective factors between Time One and Time Two of the programme, (2) To explore levels of hope and its relationship with both wellbeing and protective factors. Results provided partial support for effective change between Time One and Time Two, in hope, resilience and the adaptive coping skills of stoicism and social support seeking. Other wellbeing variables indicated positive changes but did not reach statistical significance (such as anxiety and depressive symptoms). However, when we re-tested using a

regression analysis at time two, the results indicated that as the children's levels of hope were raised (which our hypothesis one already indicated significantly raised levels of hope at time two), the children's levels of resilience, coping skills and emotional arousal and control and mental wellbeing (including anxiety and depression) also significantly improved. This may be confusing and contradictory to the reader, but it more indicates that whilst the mean scores reduced, the power to detect statistically significant changes with the repeated measures t test was not strong enough; therefore, indicated that the study would need to be repeated using a larger pilot sample size, and a control group for comparison, preferably sing more robust RCT methods. Furthermore, it was noted that there was a proportion of missing data during the time one data collection phase, in particular for the anxiety and depression scores which were placed at the end of the questionnaire pack. As this was observed, extra measures were put in place to encourage the children to complete every question at time 2. This may explain why the observed changes in anxiety and depression scores did not reach statistical significance using the repeated measures t test.

However, using a different test and hypothesis (and using a more complete data set at time two with limited missing data), which explored the impact of having raised levels of hope at the end of programme, the results indicated strong correlations between raised levels of hope and significant reductions in levels of anxiety and depression scores, along with the other protective factors (resilience, coping and emotional arousal and control) in these children. Overall, it is recommended that the study be repeated with stricter measures to deal with potential missing data at the two time points (perhaps use Qualtrics online data collection methods as this forces a response to each question before the participant can move on to the next question, thereby skipping questions is limited).

In terms of observing significantly raised levels of hope post intervention, this finding adds to the extant evidence base demonstrating that hope is a malleable construct; in this case hope has been enhanced through a taught curriculum based school programme (Berg, Snyder & Hamilton, 2008; Cheavens et al., 2006; Kirschman et al., 2010; Marques et al., 2011; Weis et al., 2011). Resilience scores also increased post intervention; supporting previous research demonstrating a link between resilience and hopefulness (Rew, Taylor-Seehafer, Thomas & Yockey, 2001). This is in line with Valle et al's (2006) finding that suggests hope mediates the relationship between stressful life events and global life satisfaction. Resilience is widely accepted as an important predictor of healthy childhood

outcomes (Luther, 2015). Contrary to our hypothesis, wellbeing scores measuring anxiety and depression did not significantly change between Time One and Time Two although an unexpected result, other studies that have successfully measured increases in hope also failed to find significant improvements in anxiety (Marques, 2011; Weis et al, 2011). Furthermore, no significant change was reported in emotion regulation. Nevertheless, two of the four coping skills subscales increased significantly between Time One and Time Two. The results for the subscales of stoicism and social support seeking suggest that these adaptive coping skills improved between the two time points. The resulting change in the stoicism subscale suggests an increase in the ability of the young adolescent to be aware of the stressful situation that is occurring yet not to let it affect them (Sveinbjornsdottir & Thorsteinsson, 2008).

Furthermore, the evidence for the protective capacity of social support for young adolescents has been well evidenced and it is considered instrumental for the successful transition from adolescence to adulthood (Rueger, Malecki & Demaray, 2010; Wang & Eccles, 2012). However, no change was reported for the subscale of self-care or the maladaptive coping subscale of rumination. Overall the effect sizes for the changes between Time One and Time Two were small. Nevertheless, it has been found that a small effect size is common in school-based programmes, cumulative evidence shows a statistically small to moderate impact (Weare & Nind, 2011) "*but they represent effects that in the real world are important and relatively large*" (Weare & Nind, 2011, pg. 64).

In terms of our second study finding, the study has indicated that as levels of hope at post-test significantly improved, so too were positive changes in resilience, depression, anxiety, emotion regulation and coping skill scores observed in the children who participated in this study. However, no association was found between hope and rumination; this result is not in line with previous research which found correlations between these constructs in an undergraduate student sample (Geiger & Kwon, 2010). Hope's association with well-being is in line with prior research (Ciarrochi et al., 2007; Esteves, Scoloveno, Mahat, Yarcheski & Scoloveno, 2013; Gilman et al., 2006; Guse & Vermaak, 2011; Rand & Cheavens, 2009; Snyder, 2000). It has shown to be negatively correlated with depression, generally consistent over time, and across situations (Arnau et al, 2007; Snyder et al., 1991; Thimm, et al., 2013). Hopes relationship with anxiety found in this study, contrasts with Simon et al's

(2009) study which found no association, however it supports evidence from empirical studies across a range of populations which has demonstrated that hope predicts reductions in anxiety symptoms (Arnau et al., 2007; Chang et al., 2015; Chang et al., 2016; May et al., 2015;; Snyder et al., 1991; Venning et al., 2011).

Hopes association with emotional regulation is in line with previous research related to war trauma, where the authors found that cognitive appraisal was related to higher levels of hope (Halperin & Gross, 2011). Additionally, Gilman et al. (2006) found higher levels of hope to be related to lower emotional distress. Furthermore, hopes' association with adaptive coping strategies found in this study is consistent with previous findings that have suggested that those with higher level of hope adopt a greater use of positive coping strategies (Snyder, 2000; Roesch 2010).

Hopes' relationship with resilience supports Worrell and Hale's (2001) study on at risk youths and may help to generalise this result to a wider population of youths. Hope's relationship with resilience is not surprising when you consider that hope enables people to envisage a future that differs from their current or past situation. This requires a cognitive flexibility which may also aid in the cognitive appraisal associated with resilience (Parsons, Kruijt, & Fox, 2016).

Limitation, this study used two different statistical tests to test hypothesis one and two. Using a repeated measures t test, no differences were observed in anxiety and depressive symptoms between time one and time two. However, using a regression analysis and using a different hypotheses, it was shown that as hope levels rose, so too did levels of anxiety and depression reduce.

Furthermore, although the measures were selected for their good reliability and validity, self-report measures are vulnerable to bias. An issue of particular relevance when measuring these constructs within a student population may be social desirability. Furthermore, due to the comprehensiveness of the questionnaires, respondent fatigue may have impacted on the responses. Future study could adopt multiple methods for assessment including, shorter length, and as stated above, more engaging online type surveying would maintain interest, and serve to lower the impact of response bias by creating a more personal environment. Furthermore, longitudinal research in this subject would allow us to measure the direction of hope over time and the long term effects of a hope

based intervention programme for young adolescents. Consequently, the results within this study should be interpreted with caution.

To sum up, the present study provides substantial insight into a under researched area that has the potential to increase a child's wellbeing and protective factors. Notwithstanding its limitations, this study provides evidence that Hopeful Minds; a hope based preventative mental health school programme can significantly increase levels of hope in children; where hope is a positive cognitive and motivation state of mind. Furthermore, significant improvements were found in resilience levels and adaptive coping strategies (specifically stoicism and seeking social support) suggesting that hope has the ability to influence other important psychological constructs. High levels of hope are associated with a wide range of positive outcomes and protective factors and its wide predictive capacity was evidenced within this study. As the hope literature base pertaining to adolescents is sparse, this evaluation of Hopeful Minds will be useful in adding to the evidence base for hope based school intervention programmes. Additionally, the results from the exploration of the relationships between hope, wellbeing and protective factors will add to this modest but growing area of research. Given the prevailing burden and impact of mental health problems within children and adolescents, it is vital that cost effective, novel and effective interventions are identified and implemented. Overall the evidence from this study supports the use of the Hopeful Minds Programme as one such method to enhance children's positive psychological, social and emotional functioning, thereby growing important protective factors which can buffer against future mental ill health and suicide.

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