SNAP® For Schools: Impact on Internalizing Symptoms

Kirstie L. Walker and Kristi D. Wright

University of Regina

Author Note

Kirstie L. Walker, Department of Psychology, University of Regina; and Kristi D. Wright, Department of Psychology, University of Regina.

Correspondence concerning this article should be addressed to: Kirstie L. Walker, Department of Psychology, Administration and Humanities Building, 3737 Wascana Parkway, Regina, SK, Canada S4S 0A2. Email: Kirstie.Walker@uregina.ca and/or Kristi D. Wright, Department of Psychology, Administration and Humanities Building, 3737 Wascana Parkway, Regina, SK, Canada S4S 0A2. Email: Kristi.Wright@uregina.ca

Abstract

Stop Now And Plan (SNAP®) is an empirically supported cognitive behavioural program for children identified as presenting with externalizing problems. The purpose of this investigation was to examine the implementation of the SNAP® for Schools program as a universal prevention program for children not identified as presenting with internalizing or externalizing problems, specifically, whether the program would lead to reductions in emotion dysregulation, anxiety, intolerance of uncertainty, and anxiety sensitivity. It was hypothesized that the SNAP® for Schools program would reduce emotion dysregulation and internalizing constructs in non-identified, school-aged children. The sample consisted of elementary school children in Grades 3 and 4. Participating children completed a battery of symptom measures one week pre- ($n = 65$) and post-SNAP® ($n = 57$) as well as one month after ($n = 54$) completing SNAP® in their classrooms. For children who scored in the upper 10% on the measure total and/or subscale scores, reductions in emotion dysregulation, anxiety, and anxiety sensitivity were observed. Findings contribute to a better understanding of the effectiveness of SNAP® for reducing emotion dysregulation and internalizing symptoms in children with elevated internalizing symptoms and emotion dysregulation. Limitations and future directions are discussed.

Keywords: Stop Now and Plan®; universal prevention program; internalizing symptoms; emotion dysregulation; cognitive behaviour therapy
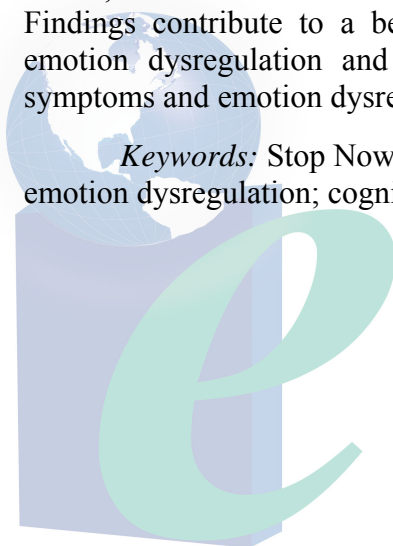
SNAP® For Schools: Impact on Internalizing Symptoms

Stop Now And Plan (SNAP®) is a cognitive behavioural therapy (CBT) intervention created by the Child Development Institute (CDI) in Ontario, Canada to help children regulate anger and impulsivity by teaching them to stop, think, and plan positive alternatives before they act (Augimeri, Jiang, Koegl, & Carey, 2006). SNAP® was designed to reduce behavioural problems (e.g., aggression), emotion dysregulation, and negative thinking by teaching effective emotion regulation, self-control, and problem solving skills (CDI, 2012). SNAP® has been demonstrated to be effective in reducing emotion dysregulation and externalizing symptoms in children (Augimeri, Farrington, Koegl, & Day, 2007; Augimeri, Jiang, et al., 2006; Augimeri, Koegl, Ferrante, & Slater, 2006; Koegl, Farrington, Augimeri, & Day, 2008; Lewis et al., 2008; Lipman et al., 2008). However, research has not examined whether SNAP® may be effective for reducing other childhood symptoms associated with emotion dysregulation, such as internalizing symptoms.

It was anticipated that SNAP® may also facilitate reductions in internalizing symptoms (e.g., anxiety) because CBT intervention programs have been effective for internalizing symptoms such as separation anxiety, generalized and social anxiety, and obsessive compulsive symptoms (In-Albon & Schneider, 2007; James, Soler, & Weatherall, 2009). Similarly, researchers have hypothesized that emotion dysregulation (a target of SNAP®) underlies both internalizing and externalizing pathology and can be ameliorated through CBT (e.g., Eisenberg, Spinrad, & Eggum, 2010; Herts, McLaughlin, & Hatzenbuehler, 2012; Silk, Steinberg, & Morris, 2003; Southam-Gerow & Kendall, 2002). Further, internalizing and externalizing symptoms often co-occur in children (Fanti & Henrich, 2010).

Intolerance of uncertainty (i.e., experiencing severe discomfort with the notion that negative events may occur in the future and there is no absolute way to predict such events; Carleton, 2012; Carleton, Norton, & Asmundson, 2007) and anxiety sensitivity (i.e., the fear of anxiety symptoms based on the belief that these symptoms have harmful physical, psychological, or social consequences; Reiss, 1991) are two constructs that have been identified as risk factors for internalizing symptoms such as anxiety. In adult samples, individuals who experience ambiguous events as catastrophic are at higher risk to develop generalized anxiety disorder (e.g., Dugas, Gagnon, Ladouceur, & Freeston, 1998), social anxiety disorder (e.g., Carleton, Collimore, & Asmundson, 2010), obsessive compulsive disorder (e.g., Gentes & Ruscio, 2011), and health anxiety (e.g., Fergus & Valentiner, 2011). Limited research exists exploring IU in childhood; however, research to date has demonstrated an association between self-reported intolerance of uncertainty and general anxiety, worry, and reassurance-seeking behaviour (Comer et al., 2009; Cowie, Clementi, & Alfano, 2016) as well as an association with anxiety sensitivity, social anxiety, and specific anxiety disorder symptoms (Boelen, Vrinssen, & van Tulder, 2010; Wright, Adams Lebell, & Carleton, 2016) in children as young as 8 years.

With respect to anxiety sensitivity, the heightened fear of arousal-related sensations and the potential for negative outcomes has been demonstrated to be associated with anxiety disorders in children and adults (Taylor, 2014). For example, anxiety sensitivity has been found to be a vulnerability factor in the development of anxiety symptoms among early adolescents ages 9 to 13 years (Schmidt et al., 2010), to predict panic symptoms in children and adolescents ages 7 to 18 years (Calamari et al., 2001), as well as to be an underlying factor of social phobia in adolescents ages 13 to 17 years (Anderson & Hope, 2009). Most recently, in a study of 128

children and adolescents, intolerance of uncertainty, anxiety disorders, and anxiety sensitivity were all related (Wright et al., 2016). Given the demonstrated relationship between intolerance of uncertainty, anxiety sensitivity, and anxiety in children, it was advantageous to include these constructs in the present investigation.

Originally SNAP® was designed to be delivered to children in the community; however, delivering the program in schools has the potential to increase identification and treatment of mental health problems in children that may otherwise remain unidentified (Levitt, Saka, Romanelli, & Hoagwood, 2007). Thus, the CDI, in partnership with the Toronto District School Boards, began delivering SNAP® in schools (Walsh & Hong, 2010). In this model, SNAP® is delivered to all children in classrooms where there have been several students with identified behavioural difficulties (Walsh & Hong, 2010). One uncontrolled study of the school-based model found, according to the parents' report, that participation led to significant decreases in behavioural issues (e.g., conduct problems and oppositional behaviours such as bullying, fighting, lying, and irresponsibility) in 28 children ages 7 to 12 years with a moderate treatment effect (Walsh & Hong, 2010). The majority of participants with clinically significant behaviour problems prior to SNAP® shifted to the non-clinical range post-SNAP® (Walsh & Hong, 2010). These findings demonstrate potential for school-based implementation of SNAP®.

What may occur while delivering school-based universal prevention programs such as SNAP® is that very few children in each classroom are identified with behavioural or mental health problems and have changes in their behaviour or symptoms monitored, yet hundreds of children receive the universal program. For example, in the aforementioned study (Walsh & Hong, 2010), 384 non-identified children (i.e., not identified with disruptive behaviour problems) completed SNAP®, but no outcome data were collected. It may be difficult to justify continuing to deliver a universal program in classrooms when outcome data for a significant portion of children are missing, coupled with the fact that identified children are often removed from class and receive a more intensive SNAP® program separately. Nevertheless, the initial positive findings (Walsh & Hong, 2010), paired with results of successful school-based universal prevention programs for treating emotion dysregulation, internalizing, and externalizing problems (e.g., FRIENDS for Life [FRIENDS]; Barrett & Ryan, 2004; Barrett, 2005), support our speculation that non-identified children in the classroom may also receive some benefit. To date no investigation has examined the SNAP® for Schools program for non-identified children and its effect on self-reported emotion dysregulation or internalizing symptoms.

In the current investigation, we examined the utility of the universally implemented SNAP® for Schools program for non-identified (i.e., those not previously identified as at-risk of behavioural difficulties as part of a larger multi-agency initiative), elementary-school-aged children. Specifically, we examined children's self-reported emotion dysregulation, anxiety disorder symptoms, anxiety sensitivity, and intolerance of uncertainty for reductions pre- to post-SNAP®, and short-term maintenance (i.e., over one month) of any reductions.

Our hypotheses were threefold. First, we hypothesized that emotion dysregulation would decrease as a function of participation in SNAP® based on research indicating that CBT programs reduce emotion dysregulation (Southam-Gerow & Kendall, 2002). Second, we hypothesized that internalizing constructs (i.e., anxiety, anxiety sensitivity, and intolerance of uncertainty) would decrease following participation in SNAP® based on research demonstrating that emotion dysregulation underlies internalizing constructs and that internalizing and

externalizing pathology frequently overlap and are effectively treated through CBT (Eisenberg et al., 1996; Fanti & Henrich, 2010). Though decreases in these constructs were desired for all students, it was acknowledged that most children in a given classroom would not fall in the clinical range on these measures; thus, we hypothesized that their scores may not decrease as much as children whose scores were most elevated (i.e., upper 10%). Examining children with the most elevated scores (who may be considered "high risk" for developing disorders) is a method employed by other researchers examining the utility of universal cognitive behavioural prevention programs (Barrett, Farrell, Ollendick, & Dadds, 2006; Barrett & Pahl, 2006; Stallard, Simpson, Anderson, & Goddard, 2008). Third, we hypothesized that symptom reductions observed one week post-SNAP® (Post 1) would be maintained one month post-SNAP® (Post 2).

Method

Participants

Participants were non-identified children in Grade 3 (n = 50) and Grade 4 (n = 15) attending one of three inner-city elementary schools in Saskatchewan, Canada (M_{age} = 8.05, SD = 0.57). The distribution of participants across schools was similar (School A: n = 25; School B: n = 21; School C: n = 19). Approximately 54% (n = 35) of participants were girls. The majority of participants were Aboriginal (40%; n = 26), followed by non-Aboriginal and non-Caucasian (34%; n = 22), and Caucasian (26%; n = 17). The attrition rate by Post 2 was 17% due to moving away and lack of interest. A total of 57 children completed the measures at Post 1, and 54 completed them at Post 2. If absent on the day of data collection, the researcher went back the next possible day to complete the measures with the child. According to an a priori power analysis using G*Power software (Faul, Erdfelder, Lang, & Buchner, 2007), with a medium effect expected, a sample size of 34 children was necessary to detect significant effects (power = 80%; alpha = .05) through the analyses of interest (repeated measures ANOVA). As the SNAP® program was delivered in three classrooms, data from more than 34 children were collected. The greater number of participants provided greater statistical power to detect significant effects.

Measures

Children's Emotion Management Scale (CEMS; Zeman, Shipman, & Penza-Clyve, 2001). The CEMS is a self-report measure of anger, sadness, and worry management in school-aged children. The measure is comprised of 33 items rated on 3-point Likert scales (*hardly ever*, *sometimes*, *often*). The CEMS contains three subscales for each of the three emotions measured: inhibition (suppression of emotion); dysregulated expression; and coping (adaptive methods of emotion management). Higher scores on the inhibition and dysregulation scales indicate poor coping with anger, sadness, or worry, while higher scores on the coping scales indicate good coping with anger, sadness, or worry. Researchers have found the CEMS to demonstrate acceptable psychometric properties supporting the reliability and validity of the scale (Zeman, Cassano, Suveg, & Shipman, 2010; Zeman et al., 2001). Poor to acceptable internal consistency, measured by Cronbach's alpha (α) was demonstrated for CEMS subscales in the current study–dysregulation (α = .53, 95% CI [.30 - .71]), coping (α = .70, 95% CI [.55 - .81]), and inhibition (α = .74, 95% CI [.61 - .84]).

Spence Children's Anxiety Scale (SCAS; Spence, 1998). The SCAS is a 44-item self-report measure designed to assess the presence of anxiety symptoms. Items are rated on 4-point Likert scales (*never* to *always*). While the SCAS is comprised of various subscales representing

subtypes of anxiety (e.g., panic/agoraphobia, social phobia, separation anxiety), in the current investigation, we utilized the total score, which ranges from zero to 114 as the positive filler items (six items) are not included; higher scores indicate greater anxiety (Spence, 1998). The SCAS possesses high internal consistency (Essau, Muris, & Ederer, 2002; Muris, Schmidt, & Merckelbach, 2000; Whiteside & Brown, 2008). The validity of the SCAS has also been demonstrated (Essau et al., 2002; Muris et al., 2000; Spence, 1998). In the current sample, excellent internal consistency was demonstrated for the SCAS total score (α = .91, 95% CI [.87 - .94]).

Childhood Anxiety Sensitivity Index (CASI; Silverman, Fleisig, Rabian, & Peterson, 1991). The CASI, designed to measure anxiety sensitivity in children (physical concerns, social concerns, and psychological concerns), has 18 items rated on 3-point Likert scales (*none, some, a lot*). The total score ranges from 18 to 54 and higher scores are indicative of greater anxiety sensitivity. The overall and test-retest reliability of the measure is high (Silverman et al., 1991). Validity is also supported (McLaughlin, Stewart, & Taylor, 2007). In the current study, good internal consistency was observed for the CASI total score (α = .86, 95% CI [.80 - .90]).

Intolerance of Uncertainty Scale–Revised (IUS–R; Walker, Birrell, Rogers, Leekam, & Freeston, 2010). The IUS–R assesses the central themes of intolerance of uncertainty in children (uncertainty, emotional and behavioural reactions to ambiguous situations, implications of being uncertain, and attempts to control the future). The 12 items are rated on 5-point Likert scales (*not at all like me* to *entirely like me*), with total scores ranging from 12 to 60; higher scores indicate greater intolerance of uncertainty. Studies have shown adequate reliability and validity of the measure (Wright et al., 2016). In the current study, we observed good internal consistency for the IUS–R total score (α = .84, 95% CI [.77 - .89]).

Procedure

Schools were identified by school administration as potential hosts of SNAP® for having many students who demonstrate behavioural problems and absenteeism. These schools were considered to gain the most potential benefit from the program based on the targets of SNAP®. Within the schools, classrooms were chosen on the basis of age appropriateness for the SNAP® materials. After approval by the University's Research Ethics Board, we sent a letter describing the SNAP® program and research project to parents/guardians. Both child assent and parent/guardian consent were required for participation. One week prior to the implementation of SNAP®, children completed the measures in their classroom in small groups with the assistance of the first author or research assistants (e.g., to read items or provide meaning for an item when required). Next, the 13-week SNAP® program was delivered in the classrooms by teachers, social workers, and guidance counselors trained as facilitators.

Overall, the program teaches how to modulate emotions by providing a concrete structure (i.e., Stop Now And Plan) to employ when choosing a course of action. Content of the program has a strong emphasis on psychoeducation, cognitive restructuring, problem-solving, emotion regulation, and encouraging inclusiveness. Through a structured curriculum, facilitated discussion, and role plays, children learn to solve problems in provoking situations so that they are able to generate feasible, personalized alternative options that lead them away from further trouble (Koegl et al., 2008). The program is comprised of the following 13 components:

- Introduction to SNAP®,

- body cues,
- SNAP® learning log,
- dealing with anger,
- joining in,
- fair play and sportsmanship,
- review – avoiding trouble,
- dealing with bullying,
- dealing with peer pressure,
- SNAP® problem solving and apologizing,
- understanding stealing,
- complimenting and rewarding yourself, and
- the final celebration (Walsh & Hong, 2010).

Additional supports such as booster sessions are also available. Several of these sessions are directly based upon CBT, such as how to understand emotions with body cues, how to change negative thoughts (e.g., how to deal with peer pressure), and how to change behaviour (e.g., how to avoid trouble). Together with the other sessions, such as joining in and fair play, these are issues that many children may struggle with at some point, and all children should find elements of this program helpful.

Each 45-minute large-group session (i.e., with all children in the classroom) is composed of activities including (a) Check In and Practice Review (5 minutes), (b) Let's Talk (begin to explore problematic situations that require use of SNAP®; 15 minutes), (c) Lights! Camera! SNAP®! (leader modeling and child role plays; 20 minutes), (d) Check Out (complete a homework assignment based on the week's topic; 3 minutes), and (e) Leveling Off (relaxation; 2 minutes; Walsh & Hong, 2010). The same trained facilitators delivered the program the same way in all three schools. SNAP® fidelity/integrity of service delivery practices were conducted by the CDI, including file audits, and consultations and monitoring of the SNAP® groups and other SNAP® treatment components utilizing adherence and competency ratings (CDI, 2012). One week and one month after the termination of the SNAP® program, children completed the measures to obtain Post 1 and Post 2 intervention data.

Data Analysis

We performed statistical analyses using SPSS for Windows, version 22.0. We completed three primary sets of analyses: (a) descriptive statistics were computed for demographic information, questionnaire subscales, and total scores; (b) univariate ANOVAs were computed to examine potential differences in measures of emotional dysregulation and internalizing symptoms across school, gender, and ethnicity; and (c) repeated measures ANOVAs were computed to assess changes in emotion dysregulation and internalizing symptoms over time with the full sample, and with children who scored in the upper 10% on the measures. When significant group differences emerged in the ANOVAs, the specific variable was used as a covariate in a repeated measures ANCOVA.

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Results

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Descriptive Statistics and Group Differences

We computed descriptive statistics for measure subscale and total scores (see Table 1).

Univariate ANOVAs were computed with Bonferroni post-hoc tests in order to examine pre-SNAP® differences in subscale and total scores across schools. A statistically significant difference between schools was found for the SCAS total score between School A and School C after Bonferroni correction ($M_{difference}$ = 15.48, p = .02). Differences across schools on this measure are unclear. As mentioned, these schools were all chosen for their inner-city demographic, being the types of schools where SNAP® would normally be implemented by the CDI. There were no known differences in demographics or socioeconomic risk factors.

Univariate ANOVAs were computed in order to examine pre-SNAP® differences in subscale and total scores across gender (post-hoc tests were not computed due to there being fewer than three groups). A statistically significant difference was found for CEMS anger coping, $F(1, 58) = 5.75$, $p = .02$, $\eta^2 = .09$, with girls scoring higher than boys (M_{girls} = 9.20, SD = 1.69; M_{boys} = 8.13, SD = 1.76). We computed univariate ANOVAs with Bonferroni post-hoc tests in order to examine pre-SNAP® differences in subscale and total scores across ethnicity. No statistically significant differences were found. Thus, the primary analyses were completed with the inclusion of school or gender as a covariate as appropriate.

Changes in Emotion Regulation and Internalizing Symptoms

Full sample. We hypothesized that emotion dysregulation and internalizing symptoms would decrease through participation in SNAP®. For the full sample, repeated measures ANOVAs (or ANCOVAs) were computed (see Table 1 for pre-SNAP® to Post 1 differences). No statistically significant decreases in emotion dysregulation or internalizing symptoms were observed. Bonferroni post-hoc tests were not examined as no statistically significant decreases were observed. This lack of significant effects also nullified our hypothesis that decreases would be the maintained at Post 2 (i.e., one month after participation).

Table 1

Means, Standard Deviations for Measures at Pre-SNAP®, Post 1 and Post 2 and Significant Changes Pre-SNAP® to Post 1 for the Full Sample

	Pre-SNAP®	Post 1	Post 2	Pre-SNAP® to Post 1	
Measure	*M(SD)*	*M(SD)*	*M(SD)*	*F*	*df*
CEMS Anger					
Inhibition	8.40(2.17)[d]	7.71(1.96)[d]	7.94(1.52)[d]	2.03	2, 94
Dysregulation	4.49(1.54)[d]	4.21(1.37)[d]	4.67(1.55)[d]	1.79	2, 94
*Coping	8.79(1.71)[d]	8.67(1.49)[d]	8.76(1.80)[d]	0.91	2, 92
CEMS Sadness					
Inhibition	7.78(2.20)[e]	8.20(2.10)[e]	8.39(2.09)[e]	1.39	2, 90
Dysregulation	5.16(1.47)[e]	5.11(1.46)[e]	5.13(1.41)[e]	0.03	2, 90
Coping	10.87(2.16)[e]	10.63(1.87)[e]	11.35(2.01)[e]	1.62	2, 90
CEMS Worry					
Inhibition	8.58(2.22)[f]	8.77(2.06)[f]	8.77(2.04)[f]	0.14	2, 78
Dysregulation	5.14(1.30)[f]	4.77(1.66)[f]	4.90(1.53)[f]	0.87	2, 78
Coping	6.40(1.53)[f]	5.95(1.58)[f]	6.55(1.15)[f]	2.19	2, 78
CASI Total	31.75(7.06)[a]	30.26(6.12)[a]	29.41(6.92)[a]	3.12	2, 106

IUS–R Total	26.11(8.75)[b]	25.99(8.66)[c]	24.37(7.60)[b]	1.35	2, 102
*SCAS Total	32.66(18.29)[c]	32.00(16.39)[c]	28.22(16.95)[c]	1.24	2, 96

Note. *Variables of school or gender have been added as covariates. Superscript letters after the standard deviation values indicate sample size as follows: [a]n = 54. [b]n = 52. [c]n = 50. [d]n = 58. [e]n = 46. [f]n = 40. CEMS = Children's Emotion Management Scale; CASI = Childhood Anxiety Sensitivity Index; IUS–R = Intolerance of Uncertainty Scale–Revised; SCAS = Spence Children's Anxiety Scale

Upper 10 per cent of sample. A second series of repeated measures ANOVAs (or ANCOVAs) was computed for children who had the most elevated scores on the measure total or subscale scores before participating in SNAP® (i.e., upper 10%; n = 4-11 for individual measures; see Table 2). Although these analyses were limited by group size and reduction in the statistical power to find significant effects, we found several statistically significant differences pre-SNAP® to Post 1 after Bonferroni correction for the number of tests, including both emotion dysregulation (anger inhibition and dysregulation, sadness coping, worry dysregulation and coping scores) and internalizing measures (CASI total score). The effect sizes ranged from small (η_p^2 = .45) to medium (η_p^2 = .66).

In terms of maintenance of reductions for emotion dysregulation, the majority of reductions were maintained at Post 2; this was true of anger inhibition and dysregulation, sadness coping, and worry coping subscale scores. While a significant decrease was not observed pre-SNAP® to Post 1 for sadness dysregulation, scores on this subscale decreased further from Post 1 to Post 2, making the decrease from pre-SNAP® to Post 2 statistically significant (M_{pre} = 7.33, M_{post1} = 6.11, M_{post2} = 5.33). Contrarily, sadness coping scores at Post 2 rose slightly and no longer differed from pre-SNAP® with Bonferroni correction (M_{pre} = 15.00, M_{post1} = 11.00, M_{post2} = 11.20). Worry dysregulation scores also increased by Post 2, not differing from pre-SNAP® after Bonferroni correction (M_{pre} = 7.33, M_{post1} = 5.00, M_{post2} = 7.00). With regard to internalizing constructs, the decrease in anxiety sensitivity (CASI total score) was not maintained to Post 2 after Bonferroni correction (M_{pre} = 42.50, M_{post1} = 33.71, M_{post2} = 34.43). Though decreases in the IUS–R total score were not seen pre-SNAP® to Post 1, the difference between pre-SNAP® and Post 2 was significant as a further decrease occurred between Post 1 and Post 2 (M_{pre} = 40.75, M_{post1} = 32.63, M_{post2} = 29.25).

Table 2

Changes in Levels of Emotion Regulation, Internalizing Constructs, and Anxiety Disorder Symptoms for the Upper 10% of the Sample

Measure	Split at	n	Pre $M(SD)$	F	df	η_p^2
CEMS Anger inhibition	10.5	11	11.45(0.52)	14.03**	2, 20	.58
CEMS Anger dysregulation	6.5	7	7.29(0.49)	7.24*	2, 12	.55
[a]CEMS Anger coping	10.5	8	11.63(0.52)	0.53	2, 12	--
CEMS Sadness inhibition	10.5	5	11.60(0.55)	4.07	2, 8	--
[b]CEMS Sadness dysregulation	6.5	9	7.33(0.50)	6.54**	2, 16	.45
CEMS Sadness coping	14.5	5	15.00(0)	7.85*	2, 8	.66
CEMS Worry inhibition	11.5	4	12.00(0)	2.70	2, 6	--

CEMS Worry dysregulation	6.5	6	7.33(0.52)	9.35*	2, 10	.65
CEMS Worry coping	7.5	11	8.27(0.47)	8.85**	2, 20	.54
CASI Total score	39.5	7	42.50(2.25)	5.86**	2, 12	.49
[b]IUS–R Total score	38.5	8	40.75(1.49)	7.67**	2, 14	.52
[a]SCAS Total score	58.5	6	63.98(5.68)	<0.01	2, 8	--

Note. [a]Variables of school or gender have been added as covariates. [b]Difference is statistically significant only between pre-SNAP® and Post 2. *$p < .05$. **$p < .01$. Benchmarks for eta-squared are as follows: .20 is a small effect size; .50 is a medium effect size, and .80 is a large effect size (Cohen, 1988). Pre = Pre-SNAP®; CEMS = Children's Emotion Management Scale; CASI = Child Anxiety Sensitivity Index; IUS–R = Intolerance of Uncertainty Scale– Revised; SCAS = Spence Children's Anxiety Scale.

Discussion

This investigation was the first to examine the effectiveness of the universally implemented SNAP® for Schools program in reducing emotion dysregulation and internalizing constructs in non-identified elementary-school-aged children. Overall, our findings did not support the hypothesis that the SNAP® for Schools program would facilitate reductions in self-reported emotion dysregulation and internalizing symptoms in all non-identified children because no reductions were observed pre-SNAP® to Post 1. In contrast, several reductions were observed for self-reported emotion dysregulation and anxiety sensitivity for children scoring in the upper 10% on each measure. The effect sizes were small to medium, though it is difficult to comment on the potential clinical significance of the findings due to the uncontrolled nature of this investigation and the small number of participants that comprise this upper 10%. In the upper 10% of the sample, some of the reductions in symptoms seen pre-SNAP® to Post 1 were maintained at Post 2, and two further decreases in symptoms were seen by Post 2 (i.e., sadness dysregulation, intolerance of uncertainty). While we hoped that SNAP® would provide benefit to most children in the classroom, it is important to note that only a small percentage of children in a given classroom will experience significant behavioural or mental health problems, and therefore it follows that not all children will receive intervention benefit from programs such as SNAP®, but rather will receive preventative benefit. Research supports universal interventions as all children receive a sufficient level of skill acquisition to provide symptom prevention (see Barrett & Pahl, 2006 for a review).

Evaluations of universal cognitive behavioural prevention programs (e.g., FRIENDS) generally examine children in a "high risk group" who score in the upper portion on the measures (e.g., internalizing, externalizing, emotion regulation) compared to all children participating (i.e., the upper 10%). Children in the high risk group tend to decrease in anxiety and depressive symptoms, and children in the lower risk group do not show increases in anxiety or depressive symptoms (Barrett & Pahl, 2006). For example, an uncontrolled study found 67% of children in the high risk for anxiety and depression category had moved into the low risk category after participating in FRIENDS, and none of the children at low risk for anxiety or depression had moved to the high risk category by follow up (Stallard et al., 2008). Our findings appear consistent with FRIENDS (Barrett & Pahl, 2006). While it is not known how many children in the current study would have developed significant internalizing or emotion dysregulation symptoms without SNAP®, the results are promising in that no significant increases in symptoms occurred during or after the program. Our findings appear to be in line

with the existing prevention program literature, lending support to the universal classroom-based implementation of SNAP®; however longitudinal studies with inclusion of a control group are necessary to confirm our findings.

Methodological Strengths and Limitations

The current investigation has a number of methodological strengths. First, while several studies have examined the utility of the other SNAP® programs, this was the second study to examine the school-based model, and the first to examine the utility of this model for non-identified elementary school children. The previous study examining the school-based model focused solely on children previously identified as at-risk for behavioural problems (Walsh & Hong, 2010). Second, a unique aspect of this investigation was its focus on self-reported emotion dysregulation and internalizing pathology. Previous research has only employed parent and teacher reports of child behaviour problems via the Child Behavior Checklist (Achenbach & Rescorla, 2001) and primarily focused on externalizing symptoms (Augimeri et al., 2007; Augimeri, Jiang, et al., 2006; Koegl et al., 2008; Lewis et al., 2008; Lipman et al., 2008).

There are also some study limitations to consider. First, due to the lack of a control group it is unclear whether the pre-SNAP® to Post 1 and Post 2 changes observed reflect effects of the intervention, spontaneous improvements with time, or regression to the mean (Cook & Campbell, 1979), despite the potential for preventative benefit. A second limitation is sample size. While according to the power analysis we had an adequate sample size to discover medium effects overall, to examine the upper 10% of the sample a larger sample size would have been desirable. This set of analyses included less than 12 children and thus was underpowered. This limits generalizability of these findings to other samples. A third limitation was the use of child self-report measures only. Neither parents nor teachers were asked to complete measures. A more complete picture may have been obtained by including both child self-report and parent/teacher-reports of child emotion dysregulation and internalizing symptoms. It is also possible that the children responded to the measures after participating in SNAP® in such a way as to please the researcher. Parent and teacher reports would have aided in detecting this possible response bias. A fourth limitation was the low internal consistency of the emotion dysregulation scales of the CEMS. This low internal consistency reduces the reliability of findings from this measure.

Future Directions

Potential future research directions may be drawn from the above discussion. First, future research should include a control group because this would allow a more definitive statement to be made regarding the effectiveness of the SNAP® for Schools program for reducing emotion dysregulation and internalizing constructs. Second, researchers wishing to examine subgroups such as the upper 10% of children in their sample should seek to have a larger sample size so to have sufficient power for these analyses. Third, a more complete understanding of the SNAP® school-based model's utility would be achieved by inclusion of both child self-report and parent/teacher-report measures of child emotion dysregulation and internalizing symptoms. This would allow for comparison of parent or teacher and child responses on measures designed to examine the same constructs. Fourth, inclusion of a longer follow-up period (e.g., three months to one year) would allow for evaluation of potential long-term gains of participating in the SNAP® for Schools program.

Conclusion

This investigation was the first to examine the utility of the SNAP® for Schools program in reducing emotion dysregulation and internalizing constructs in non-identified elementary school children. These findings were intended to add to the SNAP® literature by examining a new subpopulation of interest (non-identified children) and new outcomes (self-reported emotion dysregulation and internalizing symptoms). Further, it adds to the literature regarding the use of CBT-based universal prevention programs in the classroom, since this may be the most efficient avenue to proactively reach children who may not yet be identified as at-risk for behavioural or mental health problems. Overall, the findings suggest that the SNAP® for Schools program may play a role in reducing emotion dysregulation and internalizing symptoms for those with high levels of these symptoms in the short-term.

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