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EXAMINING THE EFFECTIVENESS OF A COPING SKILLS INTERVENTION FOR ANXIETY FOR JUNIOR HIGH SCHOOL STUDENTS AMID THE COVID-19 PANDEMIC

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Abstract

This study implemented a school-based intervention aimed at improving coping flexibility, and to determine the intervention effects on coping and anxiety in children during the COVID-19 pandemic. A total of 692 first and second year of junior high school students (347 boys, 320 girls, and 25 neither) participated. Of the 19 classes first and second year of junior high school, 10 participated in the intervention in July 2021 and nine participated in January 2022. The results showed that the intervention program effectively reduced students' anxiety. With regard to coping, there was no change in "seeking support," a decrease in "problem avoidance," and an increase in "positive interpretation and recreation." The current intervention, which aimed at improving coping flexibility, was effective in reducing anxiety and promoting coping among junior high school students during the COVID-19 pandemic. In future it may be necessary discussed to reduce the burden on schools to accept outside experts by using information-technology equipment and other means to conduct the intervention remotely.

Keywords: COVID-19, school-based intervention, anxiety, coping, children.

The COVID-19 pandemic has had a considerable psychological impact on children and adolescents worldwide, including increasing the rates of depression, anxiety, and post-traumatic stress disorder (PTSD) symptoms (Marques de Miranda et al., 2020). As of March 2020, 99% of Japanese public primary and junior high schools (in Japan, this refers to schools operated by prefectural and municipal

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governments) and 100% of national primary and junior high schools (in Japan, this refers to state-run elementary schools) were temporarily closed (Ministry of Education, Culture, Sports, Science and Technology, 2020).

Subsequently, as of February 2022, the number of schools with temporary closures decreased significantly to 0.1% in public elementary and junior high schools, respectively (Ministry of Education, Culture, Sports, Science and Technology, 2020). However, the situation remains unpredictable, with 15.4% of public elementary schools and 7.6% of public junior high schools reporting temporary grade or class closures (Ministry of Education, Culture, Sports, Science and Technology, 2022). In a survey in Japan, 30%–40% of junior high school students reported responding to the pandemic with depression, insomnia, difficulty concentrating, and grief or fear (National Center for Child Health and Development, 2022). In a survey conducted during the declaration of a state of emergency in 2020, 43.7% of teenage respondents reported that they were worried about life after school resumes (Hashimoto, 2020). This suggests that the number of students who were anxious about school life increased after the COVID-19 pandemic.

One psychological support strategy to improve the health and well-being of students exposed to unusual situations has been school-based interventions (e.g., D'Amico et al., 2017; Powell & Holleran-Steiker, 2017). Multiple meta-analyses have confirmed the effectiveness of school-based intervention programs in reducing or preventing depression, anxiety, and PTSD symptoms among students (Fu & Underwood, 2015; Werner-Seidler et al., 2017). Many of these programs collaborate with school staff as well as with external psychologists. However, owing to safety considerations to prevent the spread of the disease during the COVID-19 response period, it has become difficult for external partners to provide specialized mental health assistance in school settings.

The same coping method is not always effective in stressful situations, and it is necessary to use different coping methods depending on the situation (Lazarus & Folkman, 1984). The ability to use different coping strategies depending on the situation is defined as "flexibility of coping" (Westman & Shiron, 1994). Kato (2012) categorized practices approaching coping flexibility into (1) repertoire, (2) variation, and (3) fitness. The repertoire approach focuses on the range of coping strategies used by individuals. However, it examined the type of coping strategy rather than the number of coping strategies used, and was not able to examine the actual use of that type of coping. The variation approach focuses on varying coping strategies in response to stressful situations. However, these strategies do not always produce the desired results. Therefore, the fitness approach focuses on selecting the appropriate coping strategy according to cognitive evaluation of the situation to facilitate the desired outcome. Cognitive evaluation is a concept proposed by Lazarus and Folkman (1984). Cognitive evaluation and coping influence the magnitude of stress reactions that vary from individual to individual, even when faced with the same stressor (Lazarus & Folkman, 1984). Cognitive evaluation includes two types of evaluations: threatness, which is how much something affects you; and copeability,

which is how much you can cope with it (Lazarus & Folkman, 1984). Prior studies have estimated that problem-solving coping is effective when the controllability of cognitive evaluation is high, and emotion-focused coping is effective when it is low (Park et al., 2001; Zakowski et al., 2001). Furthermore, Kato (2012) noted the need for meta-coping as a new perspective needed for coping flexibility. Meta-coping is the perspective of monitoring coping by assessing the situation and evaluating the results of the coping process. Considering these findings, we believe that the improvement of coping flexibility can be achieved by selecting appropriate coping strategies according to the controllability of cognitive evaluation and to evaluate the results of the selected coping strategy.

For those who need to cope with unusual stressors that they have not experienced before, interventions that focus on coping flexibility are expected to facilitate adaptation. Examples include patients with chronic diseases (Schwarts & Rogers, 1994), patients with functional dyspeptic disorders (Cheng et al., 2007), and Chinese working adults (Cheng et al., 2012). In these practices, the goal is to select appropriate coping according to the controllability of cognitive evaluation and to evaluate the results of the selected coping. Since COVID-19 is a novel stressor, we thought that interventions aimed at improving coping flexibility could be expected to decrease anxiety in elementary school students. Interventions focusing on coping flexibility in Japan have not been practiced with children but have been practiced with university students (Nakamura, 2015). Coping flexibility is also associated with stress and depression among Japanese undergraduates (Kato, 2001).

The purpose of this study was to implement a school-based intervention aimed at improving coping skills, and to clarify whether the intervention lowers anxiety in children during the COVID-19 pandemic by improving coping skills. We expect that after the intervention, participants will have increased scores on the Tri-axial Coping Scale-24 (TAC-24) subscales — "seeking support," "problem avoidance," and "positive interpretation and recreation"—as well as reduced anxiety scores would decrease.

Method

Participants and Procedure

Participant flow is illustrated in Figure 1. A total of 692 students (12–14 years, M = 12.78, SD = 0.65; 347 boys, 320 girls, and 25 unknown) participated in the first and second year of junior high school. In implementing the intervention program for this study, the second author contacted the principal of the middle school to request participation. Snowball sampling was employed. All participants could read and write in Japanese and were born and raised in Japan.

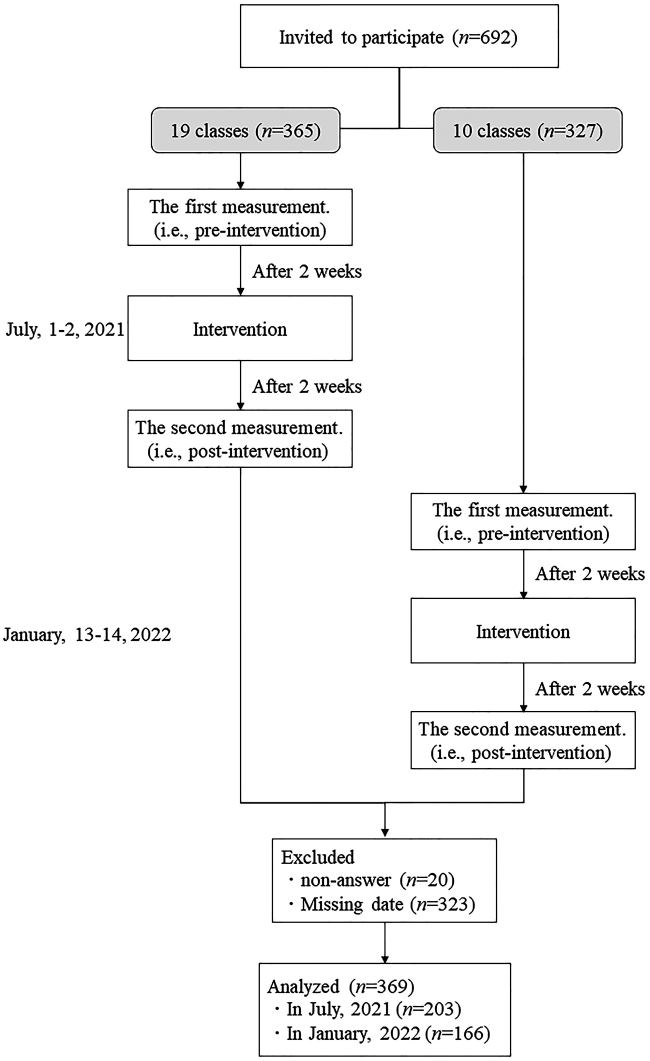

Figure 1. Participant flow diagram

In this study, some classes participated in July 2021, while others participated in January 2022. When participants received the intervention was randomly assigned on a class-by-class basis. Of the 19 first- and second-year classes in junior high school, 10 participated in the intervention in July 2021 and nine participated in January 2022. All participants completed the first measurement two weeks before the intervention (i.e., pre-intervention) and the second measurement two weeks after the intervention (i.e., post-intervention). Participants were randomly numbered so that responses to the first measurement could be matched with responses to the second measurement.

In the prefectures where the targeted schools were located, the rate of infections per 100,000 people was approximately 4.0–4.1 on the intervention day in July 2021 and 69.8– 89.9 on the intervention day in January 2022. The government subcommittee determined that when the number of infected persons per 100,000 people was ≥ 25, it corresponded to the most serious stage of the infection. The number of cases of "15 or more" corresponds to the stage in which the number of infected persons is rapidly increasing.

All participating students, their parents/guardians, and school principals provided informed consent prior to completing the first questionnaire. The questionnaire was anonymous and did not include personal information. The study protocol was approved by the ethics committee of the institution of the first author. No participant had received psychotherapy or pharmacotherapy before the study.

Intervention Program

The intervention was conducted in a single 50-minute session involving five steps. It was conducted by a graduate student majoring in clinical psychology, who received adequate training from a university teacher with national certification as a clinical psychologist in Japan.

Step 1 (10 minutes) consisted of psychoeducation concerning the mechanism of anxiety. Specifically, to reduce their resistance to dealing with anxiety in this intervention, students were informed that their feelings of anxiety were not bad and that everyone had these feelings. The interventionist explained that cognitive evaluation and coping influenced the degree of anxiety. Using examples of stressors that children may experience in their daily lives, he explained the mechanism of stress reactions based on the theory of Lazarus and Folkman (1984).

In Step 2 (10 minutes), a more detailed explanation of the cognitive assessment and types of coping was provided. The interventionist informed participants that cognitive evaluation is the ability to assess controllability and that compatibility with stress coping changes depending on controllability. In short, we explained that emotion-focused coping for stressors with low controllability and problem-solving coping for stressors with high controllability were effective in reducing anxiety and stress reactions. We tried to make explanations easy to understand by transforming psychological concepts into characters and using examples of stressors that children may experience in their daily lives. For example, we provided an example of school closure owing to COVID-19 infection control. The interventionist told the following story: "COVID-19 outbreaks and school closures are stressors that are unlikely to be controllable. If you spend a lot of time alone at home, you may feel anxious. One example of coping might be, 'It might be a relief if we knew when COVID-19 will subside! Let's look it up on the Internet!' This type of coping is problem- solving coping. As a result, we have a lot of uncertain information and a great deal of anxiety. With stressors that are less controllable, problem-solving coping is not very effective in reducing anxiety and stress reactions. Let's consider combining this with other coping strategies. In the other type of

coping, I decided to try reading a favorite book to refresh my mood. As a result, the cause of COVID-19 and school closures will not change, but we can expect to have a good time and reduce anxiety and stress reactions."

In Step 3 (15 min), participants were asked to reflect on stressors experienced in their daily lives and to consider the combination of cognitive evaluation and effective coping strategies. Once one combination was considered, participants were asked to predict the outcome after coping and the change in their feelings of anxiety. If the results or feelings of anxiety were not positive, participants were encouraged to revisit the cognitive evaluation or consider combining it with another coping strategy.

In Step 4 (five minutes), we instructed some of them to present their work and share their opinions with other classmates.

In Step 5 (10 minutes), as a supplement, we explained that the effect is likely to be higher if one chooses "coping" that can be performed by oneself. The intervener explained the following parables: "There was a person coughing nearby without a mask (stressor), which made me feel more anxious. So, I asked them to put on a mask. This is the first type of coping. But I was told that the person couldn't wear a mask because of [these] circumstances. I was convinced, but I was still worried about infection; so, my anxiety increased. So, as a second type of coping, I took precautions against infection by washing my hands and disinfecting myself with alcohol. Then, my anxiety decreased. Coping that you can do yourself is likely to be highly effective!"

The class was completed by explaining that the content of the class can be used in various situations in daily life and by citing specific scenarios.

Measurement

Anxiety was measured using the Japanese version of the Spence Children's Anxiety Scale-Short Version (SCAS; Ishikawa et al., 2018). The self-report questionnaire consisted of eight items rated on a 4-point Likert scale: 0 ("never"), 1 ("sometimes"), 2 ("often"), and 3 ("always"). The scores were summed and ranged from 0 to 24. Higher total scores indicate higher levels of anxiety. Ishikawa et al. (2018) reported excellent reliability and validity of the SCAS in the general population of Japanese children.

Coping was measured using the TAC-24 (Masuda et al., 2010). The self-report questionnaire consisted of 24 items rated on a 5-point Likert scale with four response options: 1 ("I never did (think) that. Never again"), 2 (Sometimes I do (think) that way. There will not be many in the future"), 3 ("Sometimes I do (think) that way. I will probably do it from time to time"), 4 ("I often do (think) that. I will often do so"), and 5 ("I have always thought that way. It will continue to do so"). The scores were summed and ranged from 24 to 120 points. A higher total score indicates more types of coping strategies learned. Masuda et al. (2010) reported excellent reliability and validity of TAC-24 in the general population of Japanese children.

An impression sheet created by the first author of this study was used to examine participants' evaluations of the intervention program. For the open-ended questions, participants were asked to write freely about what they thought, their overall impressions, and what they learned during the intervention.

Data Analysis

All analyses were performed using IBM SPSS Statistics version 28.0 (Japan IBM, Tokyo, Japan). The analyses in our study comprised descriptive statistics for all pre- and post-intervention measurements, t-tests for examining intervention effects, and calculating the Cohen's *d* effect size post-intervention with pre-intervention as a baseline. The t-test included time (pre- or post-intervention) as the independent variable and TAC-24 "seeking support" score, "problem avoidance" score, and "positive interpretation and recreation" score and SCAS score as the dependent variables.

Results

Excluding 20 participants who did not respond and 323 who had incomplete answers, 369 participants (186 boys and 183 girls) were included in the analysis (Table 1).

Table 1. Descriptive statistics and t-test results

		pre-intervention	post-intervention	*t* (368)	*d*
SCAS					
Total scores	*M*	7.16	6.28	5.50***	0.29
	SD	5.66	5.78		
TAC-24					
seeking support	*M*	26.40	26.39	0.04 *n.s.*	0.00
	SD	7.16	7.52		
problem avoidance	*M*	13.00	12.56	2.45*	0.13
	SD	4.54	4.80		
positive interpretation and recreation	*M*	29.72	32.47	9.83***	-0.51
	SD	6.19	7.72		

*: $p < .05$, ***: $p < .001$

Descriptive statistics of the SCAS scores were pre-intervention ($M = 7.16$, $SD = 5.66$) and post-intervention ($M = 6.28$, $SD = 5.78$). The SCAS score factor showed a significant decrease post-intervention compared to pre-intervention ($t(368) = 5.50$, $p < .001$, $d = 0.29$).

Descriptive statistics of the TAC-24 "seeking support" score were as follows: pre- intervention (M = 26.40, SD = 7.16) and post-intervention (M = 26.39, SD = 7.52). The "seeking support" score showed no significant difference pre- and post-intervention ($t(368) = 0.04$, $p = .97$, $d = 0.00$).

Descriptive statistics of the TAC-24 "problem avoidance" score were as follows: pre- intervention (M = 13.00, SD = 4.54) and post-intervention (M = 12.56, SD = 4.80). The "problem avoidance" score showed a significant decrease post-intervention compared to pre- intervention ($t(368) = 2.45$, $p = .02$, $d = 0.13$).

Descriptive statistics of the TAC-24 "positive interpretation and recreation" score were as follows: pre-intervention (M = 29.72, SD = 6.19) and post-intervention (M = 32.47, SD = 7.72). The "positive interpretation and recreation" score showed a significant increase post-intervention compared to pre-intervention ($t(368) = 9.83$, $p < .001$, $d = -0.51$).

The following were the most common statements on the impression sheet: "I better understand cognitive evaluation and coping," "I found that feeling anxiety was not bad," "It was content that I could actually use in daily life," "I want to take this class again," and "It was easy to understand the examples of daily life."

Discussion

The purpose of this study was to implement a school-based intervention aimed at increasing coping skills and improving coping flexibility, and to determine the intervention effects on coping and anxiety in children during the COVID-19 pandemic. The results showed that the intervention program was effective in reducing anxiety among junior high school students during the COVID-19 pandemic. School intervention is expected to be an effective form of psychological support to prevent prolonged and chronic stress reactions that are currently experienced by children.

Regarding coping, the results showed no change in "seeking support," a decrease in "problem avoidance," and an increase in "positive interpretation and recreation." It is possible that the students tried different coping strategies and found that "positive interpretation and distraction" helped them feel better when living with anxiety regarding a disease like COVID-19, over which they had no control. It is important to use different coping strategies depending on the stressor, and coping skills interventions for anxiety can be beneficial for junior high school students to manage the distress associated with the pandemic. However, the intervention content may have been the reason for the decrease in "problem avoidance." "Problem avoidance," as measured by TAC -24, is coping such as putting off tasks that need to be done, blaming others for failures, and making excuses. Participants were asked to consider a combination of cognitive assessments and coping, and then to predict the outcome and the degree of anxiety. "Problem avoidance" can temporarily alleviate negative feelings; however, the outcome is less likely to be a good prediction, and

therefore, anxiety is less likely to change. Through this work, participants may have learned that "problem avoidance" is not an effective coping strategy, leading them to choose a different coping strategy. As the aim of this intervention was to select coping strategies that reduce anxiety according to the controllability of the stressor, we believe that this result is not necessarily negative.

The content of the review sheets suggests that the children had a good understanding of the intervention. The use of daily life examples and characterization of psychological concepts was thought to have promoted children's understanding. In addition, many people commented that they would like to receive it again, suggesting that although it was a group intervention, they could participate with little resistance. Although the intervention was implemented during the pandemic, it is possible that the children were less resistant to receiving the intervention in classrooms with classmates.

In the future, it will be important to conduct self-monitoring of homework to see whether the flexibility of coping acquired through the intervention allowed the participants to select appropriate coping strategies in their daily lives and to appropriately assess their effectiveness. This procedure will allow us to confirm the degree of generalization of the intervention effects to daily life and to clarify more detailed effects on anxiety related to COVID-19.

Limitations and Future Directions

This study had some limitations. Since only one intervention was conducted and no control group could be established, it is difficult to say that an intervention effect was fully revealed. The results need to be examined further, as they may have been influenced by other factors. In addition, 323 participants with incomplete responses were excluded. The reason for the high number of incomplete responses may have been because it was a paper-based survey. In the future, this problem may be remedied by utilizing tablets or other electronic devices.

Psychoeducation to promote an understanding of coping potential and effective combinations of coping types was implemented in this study with the aim of improving coping flexibility. However, the generalizability of the results requires further examination. Coping flexibility is assumed to involve several cognitive processes (Kato, 2012; Park et al., 2001; Zakowski et al., 2001). For example, recalling the coping being acquired, appropriately recognizing one's situation, making cognitive evaluations of the stressor, and evaluating whether meta-coping skills produce the desired outcome for coping. Future research should examine more detailed mechanisms of what cognitive processes in coping flexibility contribute to reducing stress reactions and promoting adaptation in helping children cope with unusual stressors such as the COVID-19 pandemic. This would help to clarify the core elements of intervention programs focused on coping flexibility.

In sum, the intervention conducted in this study, which aimed to increase coping skills and improve coping flexibility, was effective in reducing anxiety and

promote coping among junior high school students during the COVID-19 pandemic. Although the children showed little resistance to participating in the intervention, it may be necessary to reduce the burden on schools to accept outside experts by using information-technology equipment and other means to conduct the intervention remotely.

Authors' note

Declaration: This is an original work that has not been submitted nor published elsewhere. All of the authors have read and approved the paper, and meet the criteria for authorship.

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Conflict of interest: None.

References

Cheng, C., Kogan, A., & Chio, J. H. M. (2012). The effectiveness of a new, coping flexibility intervention as compared with a cognitive-behavioural intervention in managing work stress. *Work & Stress, 26*(3), 272–288. https://doi.org/10.1080/02678373.2012.710369

Cheng, C., Yang, F. C., Jun, S., & Hutton, J. M. (2007). Flexible coping psychotherapy for functional dyspeptic patients: a randomized, controlled trial. *Psychosomatic Medicine, 69*(1), 81–88. https://doi.org/10.1097/01.psy.0000249734.99065.6f

D'Amico, P. J., Carmine, L., Roderick, H., DeSilva, M., & Vogel, J. M. (2017). A three-tiered model of school-based trauma services to address long-term impact of a major natural disaster. *Adolescent Psychiatry*, *7*(4), 315–329. https://dx.doi.org/10.2174/2210676608666180312113947

Fu, C., & Underwood, C. (2015). A meta-review of school-based disaster interventions for child and adolescent survivors. *Journal of Child & Adolescent Mental Health, 27*(3), 161–171. https://doi.org/10.2989/17280583.2015.1117978

Hashimoto, Y. (2020). People's anxiety, stress and depression in corona related crisis. *Journal of Information and Communication Research, 38*(1), 25–29. https://doi.org/10.11430/jsicr.38.1_25

Ishikawa, S., Ishii, R., Fukuzumi, N., Murayama, K., Ohtani, K., Sasaki, M., Suzuki, T., & Tanaka, A. (2018). Development, reliability, and validity of the Japanese

Short Version of the Spence Children's Anxiety Scale for Adolescents. *Anxiety Disorder Research, 10*(1), 64–73. https://doi.org/10.14389/jsad.10.1_64

Kato, T. (2001). The relationship between flexibility of coping to stress and depression. *The Japanese Journal of Psychology*, *72*(1), 57–63. https://doi.org/10.4992/jjpsy.72.57

Kato, T. (2012). Development of the Coping Flexibility Scale: evidence for the coping flexibility hypothesis. *Journal of Counseling Psychology*, 59(2), 262. https://psycnet.apa.org/doi/10.1037/a0027770

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* Springer.

Marques de Miranda, D., da Silva Athanasio, B., Sena Oliveira, A. C., & Simoes-E-Silva, A. C. (2020). How is COVID-19 pandemic impacting mental health of children and adolescents? *International Journal of Disaster Risk Reduction, 51,* 101845. https://doi.org/10.1016/j.ijdrr.2020.101845

Masuda, Y., Himachi, M., & Sakano, Y. (2010). The development and validation of the Triaxial Coping Scale for junior high school student and high school student: The validity of the Three Dimensional Coping Model for junior high school student and high school student. *The Japanese Journal of Stress Sciences, 25*(1), 53–63.

Ministry of Education, Culture, Sports, Science and Technology. (2020). Status of implementation of temporary school closures and examples of initiatives. https://www.mext.go.jp/content/20200319-mxt_kouhou02-000004520_1.pdf

Nakamura, S. (2015). Effects of an intervention program for improving coping flexibility. *Bulletin of the Graduate School of Education, Hiroshima University. Part 3 (Education and Human Science), 64*, 121–128.

National Center for Child Health and Development. (2022). Report on the state of mind of adolescent children and their guardians during COVID-19 pandemic. https://www.ncchd.go.jp/center/activity/covid19_kodomo/report/CxCN_repo.pdf

Park, C. L., Folkman, S., & Bostrom, A. (2001). Appraisals of controllability and coping in caregivers and HIV+ men: Testing in the goodness-of-fit hypothesis. *Journal of Consulting and Clinical Psychology, 69*, 481–488. https://doi.org/10.1037/0022-006X.69.3.481

Powell, T., & Holleran-Steiker, L. K. (2017). Supporting children after a disaster: A case study of a psychosocial school-based intervention. *Clinical Social Work Journal, 45*(2), 176–188. https://doi.org/10.1007/s10615-015-0557-y

Schwartz, C. E., & Rogers, M. P. (1994). Designing a psychosocial intervention to teach coping flexibility. *Rehabilitation Psychology, 39*(1), 57. https://doi.org/10.1037/h0080312

Westman, M., & Shiron, A. (1994). Dimensions of coping behavior: A proposed conceptual framework. *Anxiety, Stress, and Coping, 8*, 87–100. https://doi.org/10.1080/10615809508249366

Werner-Seidler, A., Perry, Y., Calear, A. L., Newby, J. M., & Christensen, H. (2017). School-based depression and anxiety prevention programs for young people: A

systematic review and meta-analysis. *Clinical Psychology Review, 51*, 30–47. https://doi.org/10.1016/j.cpr.2016.10.005

Zakowski, S. G., Hall, M. H., Klein, L. C., & Baum, A. (2001). Appraised control, coping, and stress in a community sample: A test of the goodness-of-fit hypothesis. *Annals Behavioral Medicine, 23*, 158–165. https://doi.org/10.1207/S15324796ABM2303_3