

Development of the psychosocial skills scale and its relationship with the negative emotional states of elementary school children

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ABSTRACT: The current studies aimed to develop a Psychosocial Skills Scale (PSS) and examine the relationship between psychosocial skills and the negative emotional states of elementary school children. The first study involved four experts in the educational and psychological fields and 745 fourth- to sixth-grade children at nine elementary schools. The second study involved 810 fourth- to sixth-grade children at 15 elementary schools. The scale development process (DeVellis, 2003) was conducted to develop the PSS in the first study. In the second study, the students completed the Depression Anxiety Stress Scale (DASS) and the valid version of PSS. Exploratory and confirmatory factors, multiple correlations, and Cronbach's coefficient (Alpha) analysis were used in the first study and Pearson correlation analysis was used in the second study. The PSS with four subscale structures (stress coping, communication, social awareness, and problem-solving skills) was validated as reliable which was indicated by a good fit in construct validity, internal validity, and internal consistency/reliability. These results provide some support for using the scale to measure children's psychosocial skills in Yogyakarta, Indonesia. Furthermore, in the second study, the Pearson correlation analysis suggested that the relationship between negative emotional state and psychosocial skills is fragile and there tended to be no connection between them.

1 INTRODUCTION

1.1 Background

Psychological and social problems have been found to arise in daily life, making it difficult for children to avoid these problems. It is our responsibility that educational programs should be based on problems that children may face in their life and imparted through several activities that support them (Tasgin, 2011; Yigiter, 2013). Therefore, many psychosocial skills need to be developed by children to face their daily life problems. Our study found that the children in the fourth- to sixth-grades had good psychosocial skills, but required some improvement in their stress coping, communication, social awareness, and problem-solving skills based on teacher perception (Nopembri et al., 2013). Therefore, in this study, we explored some children's psychosocial skills including stress coping, communication, social awareness, and problem-solving skills.

There are some reasons to explore these specific psychosocial skills of children. Children need to have stress coping skills to build coping and rapid recovery skills, coziness and sustainability (Kar, 2009), and to promote and maintain their physical and psychological well-being (Wagner et al., 1999; Kadhiravan & Kumar, 2012). Communication skills are required for a mutual transfer of feelings and thoughts (Aydin, 2015), to express him/herself in relation to others (Erdogan & Bayraktar, 2014), and to communicate effectively (Hollander et al., 2003). Social awareness is needed to empathize mentally and emotionally with others from diverse backgrounds and cultures, to understand social and ethical norms for behavior,

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and to recognize family, school, and community resources and supports (Smith, 2006; Cavo-jová et al., 2012; Collaborative for Academic, Social, Emotional Learning, 2015). It is necessary for children to have problem-solving skills because these are essential for every part of students' future lives, both personal and social (Gorucu, 2016), and for identifying effective solutions to the problem (Thompson et al., 2013).

An instrument to measure the psychosocial skills of children for these specific skills is needed. This scale should pay attention to validity and reliability so that it can be used for data collection. Therefore, we strived to develop a scale based on semantic differential attitudes toward statistics, especially validation using factor analysis. The psychosocial Skill Scale (PSS) consisted of four subcategories of stress coping, communication, social awareness, and problem-solving skills. The scale was considered an indirect measure because no one can directly observe psychosocial skills. The development of psychosocial skills scale followed the guideline process recommended by DeVellis (2003).

Furthermore, we investigated the correlation between psychosocial skills and the negative emotional state of children. We assumed that negative emotional states have an inverse relationship with the psychosocial level of children. It is in line with some previous studies that show the existence of these links. The relationship between depression levels and some psychosocial aspects of children has been investigated in several studies (Yasin & Dzulkifli, 2010; Becker-Weidman et al., 2010; Moghaddam et al., 2012; Tully et al., 2016). The level of anxiety of the children is also indicated to be related to some of the psychosocial skills investigated (Henley, 2005; Almeida et al., 2011; Jellesma, 2013). Likewise, the stress level seen there has a relationship with psychosocial aspects (Chou et al., 2011; Park et al., 2015, Karademir & Taşci, 2015).

1.2 Purposes of the study

This consists of first and second studies. The purpose of the first study is to develop an instrument to measure children's psychosocial skills and the second study aims to examine the relationship between psychosocial skills and the negative emotional states of children.

2 METHOD

2.1 Participants

Educational and psychological experts were involved in reviewing the items of scale in the first study. The educational experts included classroom, PE and sport elementary school teachers and an educational researcher, while the psychological expert is in the field of social psychology. A total of 745 children in the fourth to sixth-grades from nine elementary schools: three schools located near Merapi volcano (a disaster area); two schools based in Yogyakarta city (an urban area); and four schools located in the Sleman district (a suburban area), as shown in Table 1, participated in the study.

A total of 810 fourth to sixth-grade students (440 girls and 370 boys) from 15 elementary schools participated in the second study. The children's ages ranged from 7 to 15 years old (ages: Mean = 10.3, SD = 1.09). Participants in this study are described in Table 2.

Table 1. The characteristics of children participating in the first study.

School area	Sex		Age		Grade		
	F	M	Mean	SD	4th	5th	6th
Disaster	67	91	10.3	1.08	52	50	56
Urban	92	94	10.5	1.58	59	58	69
Suburban	204	197	10.6	1.13	138	123	140

Note: F = Female, M = Male, SD = Standard Deviation.

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Table 2. School and children participating in the second study.

Schools	Children in grade			N
	4th	5th	6th	
1	12	15	17	44
2	24	23	15	62
3	16	17	17	50
4	15	9	12	36
5	31	23	20	74
6	11	13	19	43
7	9	11	11	31
8	11	6	15	32
9	14	14	22	50
10	24	19	15	58
11	27	20	26	73
12	18	22	18	58
13	21	31	18	70
14	16	16	18	50
15	33	27	19	79
				810

2.2 Procedure

The development of the Psychosocial Skills Scale (PSS) in the first study was based on specific guidelines for scale development (DeVellis, 2003): (1) determine clearly what is to be measured; (2) generate an item pool; (3) determine a format for measurement; (4) have the item pool reviewed by experts; (5) include scale validation items; (6) administer the items to a development sample; (7) evaluate the items; and (8) complete the final version of the scale. In the second study, the children completed the Depression Anxiety Stress Scales (DASS 42) and the final version of the PSS.

2.3 Data collection

The pilot version of PSS included four self-reporting subscales designed to measure coping with stress, communication, social awareness, and problem-solving skills among the children. Each of the four subscales contained ten items. Respondents rated each item on a four-point scale according to their circumstances, with response options ranging from; not according to me (0), less suited to me (1), moderately according to me (2), and completely according to me (3).

Based on the results of the first study, the final version of the PSS was used to measure coping with stress, communication, social awareness, and problem-solving skills among the children in the second study. The negative emotional state of the children was measured using the DASS 42 (Lovibond & Lovibond, 1995). The 42-item self-reporting questionnaire consisted of three subscales; each scale consisted of 14 items, divided further into subscales of 2–5 items with similar content. Respondents were asked to use a four-point severity scale to rate the extent to which they experienced each symptom over the previous week.

2.4 Data analysis

All analyses were performed using SPSS (Statistical Package for Social Sciences) and AMOS (Analysis of Moment Structures) version 22.0 for Windows, and the statistical significance was set at $p < 0.05$. In the first study, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were performed to assess the construct validity of the PSS. Multiple correlations among the items and the item totals were calculated to examine the scale's

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internal validity, and the scale's reliability was tested using Cronbach's Alpha coefficient. In the second study, the relationship between psychosocial skills and negative emotional state was examined using Pearson correlation analysis.

3 RESULTS

3.1 First study

Determine what to measure. We decided to measure the children's psychosocial skills. The psychosocial skills in this context consisted of coping with stress, communication, social awareness, and problem-solving. Coping with stress refers to an individual's cognitive and behavioral efforts to manage stress (Carpenter, 1992). Communication is a basic skill that one learned to communicate effectively (Hollander et al., 2003). Social awareness is the ability to take the perspective of and empathize with others from diverse backgrounds and cultures, to understand social and ethical norms for behavior, and to recognize family, school, and community resources and supports (Collaborative for Academic, Social and Emotional Learning, 2015). Problem-solving is defined as a cognitive-affective-behavioral process through which an individual or group identifies or discovers an efficient way of coping with a problem encountered in everyday life (Yigiter, 2013). These skills are crucial for children in their daily lives.

Generate an item pool. We initially drafted a self-reporting scale to measure children's psychosocial skills that included four subscales that assessed children's stress coping, communication, social awareness, and problem-solving. Each subscale consisted of ten items. All items were developed using simple statements in the Indonesian language.

Determine the format for measurement. The Likert-type scale was selected to rate responses because it was easier to score and the respondents were familiar with the format. The items measured the children's agreement with statements describing them on a four-point scale, with responses ranging from not according to me (0), less suited to me (1), moderately according to me (2), and completely according to me (3). The choice of a four-point instead of a five-point scale was intended to force apathetic or ambivalent respondents to choose a final response category (Garland, 1991).

Review of the item pool by experts. The authors selected four experts from the areas of education and psychology to review the initial item pool. The educational experts of the study consisted of a classroom teacher, a PE teacher, a sports teacher, and a researcher in education. We asked the teachers and the educational researcher to review the scale and provide input on it. They checked the quality of each item regarding its content, clarity, and legibility, especially its suitability for children in the fourth- to sixth-grades of elementary school. They also reviewed the response options for their compatibility with the information obtained by the authors. The authors obtained feedback from these experts to refine and revise the scale's items. They suggested improving the item's statements by using easier words that could be understood by the children. The scale's statements were restructured to form simple sentences. The experts also suggested avoiding the use of educational terminology that would elude the children. For the response options, the experts suggested using the appropriate reading and comprehension level for children's responses to the statements, by considering their level of thinking skills. The expert from the specialty area of social psychology recommended revisions and corrections of the scale's items. This expert checked each item's compatibility with the concept of the psychosocial skills to be investigated and reviewed by the scale's response options. The expert judged that ten items (statements) for each subscale was sufficient for extracting information. This expert also revised statements that were unclear, ambiguous or lengthy. The expert agreed with the use of the four-point rating scale without a neutral option to ascertain a firm position on the children's attitudes through their responses to the items.

Include scale validation items. In this step, the authors selected items that had been suggested by experts according to their field of expertise. The authors selected ten statements to measure each skill, which summed to 40 items. The valid items in the scale's English version are shown in Table 3.

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Table 3. The final statements in the psychosocial skills scale.

Item	Stress coping statements
1	I avoid contact when having problems with a friend.
2	I do something that is fun to solve a problem with a friend.
3	I avoid anything that makes me disappointed.
4	I think that every problem in the school will resolve itself automatically.
5	I do something to calm down when I face problems at school.
6	I avoid feeling disappointed, or I forget about problems at school.
7	I engage in exercise/sport.
8	According to me, any problem can be resolved well.
9	I engage in a hobby/interest that helps me feel relaxed and happy.
10	I pray diligently.
Item	Communication statements
1	I say "please" and "thank you" when I ask for something from someone.
2	The clothes which I wear make others feel comfortable.
3	I am not cursing/using abusive language in a public place.
4	My hair is clean and tidy.
5	I have a good body condition.
6	I look in their eyes while talking to someone.
7	My nails are cleanly and neatly trimmed.
8	I am angry and impatient when something is not as I would like.
9	I try not to criticize when others do something different from me.
10	I am grateful to those who helped or gave me a gift.
Item	Social awareness statements
1	I do not care about friends who tease or call my name.
2	I try to understand the feelings of a friend who is angry, upset, or sad.
3	I feel pity for the people affected by the disaster/accident.
4	I do things that please my parents, (such as helping at home) without being asked.
5	I speak to my parents when opinions are different.
6	I listen to older people without getting angry.
7	I make friends easily.
8	I invite others to participate in community activities.
9	I smile, wave or nod at others.
10	I participate in school activities (such as extracurricular sports, boy scouts, etc.).
Item	Problem-solving statements
1	I like to solve problems and make decisions.
2	I love to collaborate with groups to complete tasks.
3	I resolve problems quickly and easily.
4	I can learn quickly and easily.
5	I know the details of the task and do it right.
6	I am an intelligent person and can think in complicated situations.
7	I am more concerned about facing uncertain problems.
8	I try to sort the problems faced starting from the easiest to the most difficult.
9	I like to do something that can be done well.
10	I can make difficult decisions easily and be firm about them.

Administer the items to a development sample. We conducted a pilot study of the validated subscales using a sample with similar characteristics to the research sample. As explained in the description of the study's participants, 745 children from the fourth- to sixth grades of elementary schools in the Yogyakarta area comprised the development sample from the urban, suburban, and disaster areas (see Table 4).

Evaluation of the items. In this step, the authors evaluated the scale's items based on the data obtained from the pilot study of the development sample. Statistical analyses were

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Table 4. The name of factors and distribution of items.

Scale	Factors	Item distribution
Stress coping	Reactivity to stress	7, 8, 9, 10
	Assess situation	1, 2, 3, 6
	Relaxation	4, 5
Communication	Verbal	3, 6, 8, 9
	Non-verbal	1, 2, 4, 5, 7, 10
Social awareness	Cognitive empathy	1, 5, 6
	Emotional empathy	2, 3, 4, 7, 8, 9, 10
Problem-solving	Decision-making process	1, 2, 3, 4, 5, 6, 7, 8, 9, 10

performed to assess the scale's construct and internal validity, and its internal consistency/reliability. Construct validity was tested using Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The internal validity was examined by calculating multiple correlations of the scores on the individual items with the total score, and the scale's internal consistency/reliability was verified using Cronbach's Alpha coefficient. Before the EFA, the authors performed the required Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO MSA). The following scores were obtained: stress coping = 0.728 (moderate), communication = 0.827 (good), social awareness = 0.874 (good), and problem-solving = 0.905 (very good). The scores on Bartlett's Test of Sphericity were 1,148.691 for coping with stress, 1,170.953 for communication, 1,557.175 for social awareness, and 1,840.836 for problem-solving, with 45 degrees of freedom and a probability of < 0.001 , indicating significant results. Thus, the sample was deemed appropriate for further analysis. The next step of the EFA, the extraction of factors to view eigenvalues in the scree plot, showed that three components of stress coping, two components of communication, two components of social awareness, and one component of problem-solving had eigenvalues greater than one. Varimax rotation of the factors was used to maximize the relationship between the variables with multiple iterations or rounds. The varimax method was selected to rotate the initial extraction factor results and eventually obtain the results in one column where the values were as close as possible to zero. Item statements were disqualified if the rotated factor loading was less than 0.30 (< 0.30). The rotation factor results indicated that there were no items with a rotated factor loading less than 0.30. The distribution of the items and the names of each factor, based on the rotated factors, are presented in Table 4.

In the next steps, a CFA was performed to verify the model's goodness of fit. The fit indices were the Root Mean Square Error of Approximating (RMSEA), the Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), and Comparative Fit Index (CFI), which indicated that the model had a good fit. This is shown in Table 5.

The internal validity of the items for each subscale were examined by calculating the correlations between each item's score and the total score on each subscale. Pearson's correlation coefficient was significant ($p < 0.01$ in the two-tailed test) between the items' scores and the total score on each subscale. To examine the instrument's internal consistency/reliability, the authors calculated Cronbach's Alpha coefficient for each subscale, which indicated adequate reliability: 0.727 for the coping with stress subscale; 0.699 for the communication subscale; 0.794 for the social awareness subscale; and 0.835 for the problem-solving subscale. Thus, the item statements on the scale had high internal consistency/reliability. Finally, the analysis of the scale's construct validity indicated a good model fit; a significant correlation between all the items and the total score showed good internal validity; and the internal consistency, as measured by Cronbach's Alpha, was acceptable for this sample.

Completion of the final version of the scale. Based on the results of the analysis of the scale's construct validity using factor analysis, internal validity, and consistency/reliability, the item statements in each scale significantly contributed to the indicators. Furthermore, the statistical results indicated the scale's structure contained four different subscales. Each subscale consisted of ten items; coping skills for stress (reactivity to stress, assessment of

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Table 5. CFA Indexes of the scale of a good fit model.

No.	Scale	RMSEA	GFI	AGFI	CFI
1	Stress coping	0.055	0.973	0.954	0.936
2	Communication	0.051	0.973	0.957	0.942
3	Social awareness	0.054	0.973	0.956	0.952
4	Problem-solving	0.057	0.966	0.947	0.953

Table 6. Summary of Pearson correlation analysis.

Variables	Stress coping	Communication	Social awareness	Problem-solving
Depression	-0.045	-0.065*	-0.083**	-0.058*
Anxiety	0.026	0.021	0.021	0.011
Stress	0.035	0.032	0.025	-0.006

Note: * $p < 0.05$, ** $p < 0.01$.

the situation, and relaxation factors), communication skills (verbal and non-verbal factors), social awareness skills (cognitive and emotional empathy factors), and problem-solving skills (decision-making process factor). The final version of the scale included general information about the respondent's name, date of birth, age, sex, school's name, grade), and instructions for completion (how to answer the questions and the four possible answers) for use in the subsequent study.

3.2 Second study

The Pearson's correlation analysis was performed to examine the relationship between a negative emotional state and psychosocial skills variables. There is a significant negative correlation between depression and communication ($r = -0.065$, $p = 0.032$), social awareness ($r = -0.083$, $p = 0.009$), and problem-solving ($r = -0.058$, $p = 0.049$) but not between depression and stress coping ($r = -0.045$, $p = 0.098$). There is not a significant correlation between anxiety and stress with psychosocial skills components. The conclusion is that the relationship between negative emotional state and psychosocial skills is fragile and there tend to be no connection between them. This can be seen in Table 6.

4 DISCUSSION

The results of this study provide empirical evidence that the PSS is a reliable and valid measure of children's psychosocial (coping with stress, communication, social awareness, and problem-solving) skills. The overall scale consists of four subscales for use with fourth- to sixth-grade children in elementary schools. This scale was developed using a sample of children from various areas of Yogyakarta, Indonesia. The development of the PSS involved education and psychology experts who provided direct input on the generation of the items. Efforts were made to ensure that the items were developmentally appropriate for the sample children in wording and content. Each of the four subscales were developed with the purpose of measuring a specific skill. The coping with stress subscale was developed to assess children's ability to deal with stressful problems in their school and daily activities. This subscale's purpose is consistent with the assumption that individuals cope with stress by using avoidance measures to reduce stressful problems (Aslam & Tariq, 2010). The communication skills subscale was developed to measure children's verbal and non-verbal communication skills. This scale's purpose was based on the premise that there are three levels of communication: logical (words), para-verbal (tone, volume, a rate of speech, and so on), and non-verbal

(facial expression, position, movement, clothing, and so on) communication (Preja, 2013). The social awareness skills subscale measures children's cognitive and emotional empathy. This subscale is consistent with the definition of social awareness as being closely related to the ability to empathize to understand (cognitive) and feel emotions (emotional/affective) in response to others' situations (Cotton, 2001; Blair, 2005; Smith, 2006; Zhou & Ee, 2012). The problem-solving skills subscale was developed to assess the problem-solving ability of the children in their daily activities. Problem-solving skills involve the use of cognitive, affective, and behavioral processes to solve problems encountered in everyday life (Karademir & Tasçi, 2015; Yigiter, 2013; Thompson et al., 2013).

This study found that depression among the children had a significant and negative relationship with communication, social awareness, and problem-solving skills. A depressed state might have negatively influenced the psychosocial skills of communication, social awareness, and problem-solving. Therefore, a reduction in depression should be followed by increased communication, social awareness, and problem-solving skills of the children and vice versa. This finding is consistent with the notion that depression involves some contributing factors, such as genetics, environment, lifestyle, brain activity, psychology, and personality (Moghaddam et al., 2012). The current study's findings are similar to that of a study by Yasin and Dzulkifli (2010) which reported a significant negative relationship between social support and depression. Another study found that the ability/inability to solve a problem with a positive attitude was associated with the risk of depression (Becker-Weidman et al., 2010). However, a study by Tully et al. (2016) reported different findings, specifically a positive correlation between social awareness and depression by the level of cognitive empathy associated with elevated depression.

Anxiety and stress did not have a significant relationship with any of the psychosocial skills. It means that the children's anxiety state did not relate to or significantly alter their psychosocial skills. The current study's findings contradict some previous studies. A study by Aslam and Tariq (2010) found that resilient individuals were less vulnerable to anxiety, and another study concluded that the anxiety associated with differences in the communicative behavior of individuals involved physical changes and changes in speech and voice (Almeida et al., 2011). In the overall consideration, the relationship between stress and psychosocial skills found in the current studies also does not match with previous studies. Stress can be an early symptom of a medical problem among children, resulting in their loss of social interaction (Jellesma, 2013). The Study that have examined the relationship between stress and psychosocial skills reported an association between stress and coping strategies (Chou et al., 2011). Other studies have concluded that stress is a significant predictor of empathy among students (Park et al., 2015) and that the presence of stress and having old problems predicted excellent problem-solving skills (Karademir & Tasçi, 2015).

5 CONCLUSION

In the first study, the PSS (coping with stress, communication, social awareness, and problem-solving) was developed and validated. The scale was used to measure the psychosocial skills of fourth- to sixth-grade children in elementary schools in the Yogyakarta area. Despite using published guidelines and appropriate statistical analyses for the scale's development, this study has several limitations. First, our sample consists of fourth- to sixth-grade elementary school children from the Yogyakarta area of Indonesia; therefore, our results cannot be generalized to children who live in other geographical locations in Indonesia. Second, experts in fields specializing in psychosocial skills were not involved in this study. Third, in the preliminary examination of the scale's construct validity, the authors did not analyze the correlations between the PSS factors and the factors of other scales.

A fragile relationship between a negative emotional state and the psychosocial skills of children was reported in the second study. Depression, stress, and anxiety tended not to have a close relationship with stress coping, communication, social awareness, and problem-solving skills. It means that an increase or decrease in the negative emotional state may not

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affect the psychosocial skills of children and vice versa. Further research on intervention programs is needed to harmonize the two components so that the children will have the psychological and social strength to meet the challenges of everyday life.

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