

Original Research Article

Spirituality as an internal protective factor of resilience in children after exposing flood

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ABSTRACT

Background: Flooding is recognizing as a risk element that effect many difficulties to children and could impact to their academic performance. In order to buffer such risk condition, some abilities are required to overcome that situation. One of abilities is resilience. The main purpose of this study was to investigate predictor of internal factors (age, illness, gender, emotion, behaviour, spirituality and physical activity) in resilience of elementary school-aged children who exposed the major flood in Serang, Indonesia. The framework used in this study was Resilience Model proposed by Karol Kumpfer.

Methods: A cross-sectional correlation design was employed to accomplishing the study. The total final samples were 162 children who were 9-12 years and who were studied in 3rd to 6th years. All of them are those who were exposed to major flood in Undar Andir, Serang, Indonesia in 2013. The instruments used were self-report questionnaires. The Connor-Davidson Resilience Scale- 10, The Daily Spiritual Experience Scale, The Strengths and Difficulties Questionnaire and The Physical Activity Questionnaire were utilized in this study after the validity and reliability test. Pearson's correlation, point biserial and multiple regressions were employed for analysing data.

Results: The results showed that there were significant correlated between behaviour ($r = 0.157$, $p < 0.05$), spirituality ($r = 0.261$, $p < 0.01$), physical activity ($r = 0.185$, $p < 0.05$), and resilience of children. However, age, illness, gender, and emotion were not significantly correlated with resilience. In multiple regressions, spirituality showed as a predictor of resilience ($Beta = 0.213$, $p < 0.05$) in children after exposing the flood.

Conclusions: In conclusions, flooding is considered as a risk for children. In order to prevent the potential problems due to flood, children need protective factor. This study discovered that high spirituality increases resilience of children. Therefore, spirituality is well thought-out as an internal protective factor of resilience. This study suggested the developing of nursing intervention with religion-activities.

Keywords: Children, Flooding, Protective factor, Resilience, Spirituality

INTRODUCTION

Recently, study of resilience in young people is investigating the protective factors that stimulated by risk and adversity.¹ Resilience is defining as the ability to maintain well-being despite the challenging situations.²

Flooding is recognizing as the potential risk to the development of children in academic.³ The greater number of risks in children's life requires further protective factors as shield.⁴ According to resilience model by Karol Kumpfer, there are several internal factors that recognize as protective factors of resilience including, emotion, behavior, spirituality, and physical activity.^{3,5}

Therefore, by using resilience model by Karol Kumpfer, this study found a new perception of resilience in young people who exposed major flood.

There are several concepts of resilience adopted in this study. Masten and Coatsworth cited in Nintachan defined "resilience globally as manifested competence in the context of significant challenges to adaptation or development. They note that researchers must make two judgments in order to identify resilience: (1) there has been a significant threat to the individual. This threat is usually either high-risk status or exposure to severe adversity or trauma. (2) The quality of adaptation or development is good. That is, the child is behaving in a competent manner" p- 45.⁴

Internal factor is the authenticity of the person. One individual is different with each other because they are not coming from the same genes, family, environment or even culture. In addition, some internal factors such as behavior, emotions, spirituality and physical activity are the internal factors related to the resilience in children, especially school age children.^{2,6} All of these factors are adhering in the child as an individual. Therefore, resilience in different culture and area might be different even they are facing the same risks.

During the last 10 years, there has been an increase of flooding incidents in Banten Province. Serang as a capital city of Banten Province is one of crowded area in Banten province. Rainy season in the beginning year of 2013 caused plenty of water within the river, and then it resulted in major floods that hit Undar Andir, Serang District. This major flooding swamped over 669 houses with wave height up to 3 meters. This incidence caused 3,954 people including children to be evacuated to emergency camp for more than one week.^{5,7} Children experiencing evacuation and separation from family usually ended up with psychological trauma, such as stress and anxiety.^{8,9} As a result of significant exposure to floods incident, the trend of Grade Point Average (GPA) of children in elementary schools Undar Andir 1 and 2 had declined. Masten claimed that the declining of academic performance was indicated of psychological symptom.¹⁰

The best way to understand how floods incident affects resilience in children is to assess their perspective because children are the best subject and are able to express their thinking.³ Moreover, Manning said that children aged nine years old or above is able to reflect the incident in their own perception.¹⁰ Not only that, children aged 9 years or older also has characteristics of building trust of their environment, so they can achieve resilience.¹¹

Previous study in Indonesia had revealed that environmental factors significantly influenced resilience amongst children experienced to moderate flooding incident.¹⁸ However, Grotberg claimed that in order to become resilient, children aged nine years and older use many resources not only external, but also internal

factors.¹¹ Therefore, by deploying the Resilience Model by Karol Kumpfer, current study has aimed to explore children's perspective from internal factors which can influence of their resilience in situation of major flood.³

METHODS

Design

A cross-sectional study design was engaged in this study.

Sample

The total possibility participants in this study were 186 children. They were selected from two swamped elementary schools in Undar Andir, Serang district. The inclusion criteria of the participants were children aged 9-12 years old, (1) who exposed major flood and evacuation, (2) who their homes were drowned by floods, (3) who got permission from parents or guardian, (4) who were able to accomplish the questionnaire, and (5) who agreed to participate.

Data collection

Ethical approval had been granted previously by Borromarajonani College of Nursing Nopparat Vajira Review Board. Assent formed written was obtained from children under the agreement of parents or guardians. The information letters were given for two days prior to data collection, so they can read and make sure that they understand the details of the data collection process.

Data were collected on July 10th, 2014 after getting the permission from the Head of Schools and teachers. Simple Random Sampling was used to select the participants. Children who were selected as participants and do not have the signature of informing consent from a parent or guardian were still given the questionnaires, but the questionnaires were destroyed and did not use. The participants were emphasized that the questionnaire was not an examination, so the answer must be based on their perception. In order to make children more comfortable, the total of participants was divided into 13 small group. One group was led by the researcher, and another 12 groups were led by co-researchers who knowledgeable regarding to the data collection process.

The data collection was taken in the classes about 70 minutes. In the middle of a session, participants had 10 minutes break and refreshment. The researchers collected the questionnaires from the participants who were finished in filling out of all items question. The questionnaires were kept in the sealed envelopes. At the accomplishment of the questionnaire, participants were given a token of appreciation. A total of 186 questionnaires were obtained, and the final analysis was performed with 162 questionnaires as six questionnaires had missing items and another 18 were questionnaires of participants who did not have permission from parents or guardians.

Measurement tools

Resilience

Resilience was measured with Connor-Davidson Resilience Scale 10 (CD-RISC 10) that has been developed by Connor and Davidson. CD-RISC is available in Bahasa Indonesia and fit for children from 6 years old above.¹²

Spirituality

Spiritual was measured by Daily Spiritual Experience Scale (DSES) that has been developed by Lynn G. Underwood. This questionnaire is available in many languages, including Bahasa Indonesia.¹³

Emotion and behavior

The emotional and behavioral was measured by the Strengths and Difficulties Questionnaire (SDQ) that developed by Koskelainen. This questionnaire is fit for children 4 to 16 years old and can measure the children’s emotion and behavior in term of difficulty time. In addition, this questionnaire has a Bahasa Indonesia version, and fit for Indonesian children 4 to 16 years old.¹⁴

Physical activity

The physical was measured by Physical Activity Questionnaire for Children (PAQ-C) that has been developed by Kowalski¹⁵. This questionnaire is a self-administered, 7-day recall instrument which consists of 10 questions. It was developed to assess general levels of physical activity elementary school children in grades 4th to 8th and approximately 8 to 14 years old. However, this questionnaire has not been found in Indonesian version, so back-translate method was used to translate the original version in English to Bahasa Indonesia.

Ethical approval

This study was approved by the Ethics Review Board Committee for Research Involving Human Research Subjects, Borommarajonani College of Nursing Nopparat Vajira (ERB of BCNNV No. 41/2014). Participant information sheet (PIS) and inform consent have been provided for all participants in this study. This study considers the anonymity and confidentiality. All information was de-identified by assigning a unique code number for this study. The data security was maintained by using computer password protection. Besides, research files were kept in a locked file cabinet in a restricted area accessible only by authorized personnel. The researchers gave freedom to the potential respondents to participate. Participants who met the inclusion criteria and were willing to take part in the study were asked to sign the consent form. The participants could withdraw from the study at any time without any consequences.

Data analysis

The statistical analysis was conducted using SPSS software version 15.0 (Kasetsart University, Thailand). Means and standard deviations were calculated for analysis of resilience of children. Pearson correlation coefficients were computed to define the relationships between resilience and emotion, behavior, spirituality and physical activity. Further analysis used multiple regression was ran to investigate the predictor factors among related variables to resilience.

RESULTS

This study investigated the relationships between resilience and internal factors (emotion, behavior, spirit and physic). Data were collected from July 7 to July 10, 2014. The results showed that 162 of participants, the majority 53.1% were female. The largest number of participants or around 30.9% was 12 years of age. Regarding illness, participants who experienced illnesses were 35.8% (Table 1). In addition, the results also showed that majority (65.4%) of children were moderate resilience with the range score of 11-39 (total score = 40), mean of 24.36 and SD = 5.14. In challenging situation after flood event, there are some children showed substantial risk of clinically problem (37%) and may reflect clinically problem (19.8%). On the other hand, their behavior showed unlikely clinically problem (95.1%). In terms of spirituality, many of children showed moderate level (70.4%) with physical activity also in the moderate level (70.4%) (Table 2).

Table 1: Characteristics of children (n = 162).

Personal characteristics	Number (n)	Percentage
Gender		
Male	76	46.9
Female	86	53.1
Age (years)		
9	36	22.2
10	40	24.7
11	36	22.2
12	50	30.9
Illness		
Experiencing of illness	58	35.8
Not experiencing of illness	104	64.2

According to bivariate analysis, it present that behavior ($r=0.157$, $p<0.05$), spirituality ($r=0.261$, $p<0.01$) and physical activity ($r=0.185$, $p<0.05$) were statistically significant associated to resilience. However, other variables such as age, gender, illness and emotional status were not significantly associated to resilience (Table 3). In further analysis by using multiple regression analysis showed all resilience factors produced $R^2=0.093$, adjusted $R^2=0.076$, $F=5.429$ and $p<0.01$. The results also revealed that only spirituality (Beta: 0.213, $p<0.01$) that identified

as a predictor factors significantly affecting resilience. According to the result, it can be assumed that if the spirituality of children rise 1 level, so their resilience will increase about 0.213 when others variables were

controlled. In this study, all variables in this model could explain 0.76% of the variation in resilience of children who were exposed to major flood (Table 4).

Table 2: Level of resilience and independent variables (n = 162).

Variables	Frequency	%
Resilience		
Low	27	16.7
Moderate	106	65.4
High	29	17.9
Mean 24.36 SD 5.14 Min 11 Max 39		
Emotion		
Unlikely clinically problem	70	43.2
May reflect clinically problem	32	19.8
Substantial risk of clinically problem	60	37
Mean 5.82, SD 1.96, Min 1, Max 10		
Behavior		
Unlikely clinically problem	154	95.1
May reflect clinically problem	5	3.1
Substantial risk of clinically problem	3	1.9
Mean 8.1, SD 1.54, Min 1, Max 10		
Spirituality		
Low	28	17.3
Moderate	114	70.4
High	20	12.3
Mean 61.02, SD 11.21, Min 33, Max 89		
Physical activity		
Low	23	14.2
Moderate	114	70.4
High	25	15.4
Mean 25.25, SD 4.34, Min 14, Max 37		

Table 3: Correlation between independent variables and resilience (n = 162).

Variables	1	2	3	4	5	6	7	8
Age ^a	-	0.023	-0.224**	0.061	0.264**	0.105	0.021	0.129
Gender ^b		-	-0.212**	0.137	-0.028	0.070	0.374**	0.098
Illness ^b			-	0.035	-0.148	0.064	-0.100	-0.035
Emotion ^a				-	0.106	0.011	0.095	0.105
Behavior ^a					-	0.178*	0.135	0.157*
Spirituality ^a						-	0.258**	0.261**
Physical activity ^a							-	0.185*
Resilience								-

^apearson's coefficient correlation, ^bPoint biserial; **Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed).

Table 4: Predictors of resilience (n = 162).

Predictor of resilience	Coefficient β	Std. Error	Std. Beta	t
Behavior	0.345	0.257	0.104	1.340
Spirituality	0.098	0.036	0.213	2.686*
Physical activity	0.138	0.093	0.116	1.473

R² 0.093, Adjusted R² 0.076, F=5.429; *P value <0.01.

DISCUSSION

Children are reported to be moderate resilience. It's so that after one and a half years have passed since the occurrence of flooding, many children are still in a state. Consistent with the report of SDN Undar Andir School, after the incident of flood, children showed the declining academic performance. These results support the consideration that in challenging situations, children resources needed for them to become a formidable force. However, if the resources are not available, so the resilience is not easy to achieve.⁹

Regarding the result of this study, internal factors including, behavioural, physical and spiritual were significantly correlated with resilience. This study recognizes that internal factors influence to the level of resilience in children who exposed to major flood.³ The higher the level of internal ability of children, it impacts to the outcome of resilience to the higher level.

In contrast, this study found emotional of children regarding the flood is not significant correlated with their resilience. This finding inconsistent with the previous study mentioned that emotional of children regarding to deal with adversity determine the outcome of resilience.¹⁶ The interpretation of this inconsistency finding may be due to the time-lapse of flood incident. The ability of children to remember their experiences regarding emotion when they faced the major flood may be intervened by other factors. Fivush mentioned that even though children can still recall their memory regarding significant events for up to three years, but remarks the memory possibly influence by other factors because they always be excited to the new experiences rather than the past experience.¹⁷

In addition, personal characteristic of children such as age, gender, and illness were not significantly correlated with resilience. It because of resilience is a unique ability by involving resources that might come from environment or internal ability.²

As findings of this study, all personal characteristics of children were not significantly correlated with resilience. It means that children cannot build resilience based on their own personal characteristics unless children enhance internal ability or receive support from environmental factors.

As revealed in these findings, children who had positive behaviour showed more resilience than the opposite. This is consistent with the study by Taylor who found that in spite of adversities, children recognized as a social performer to build their community by their good manner.¹⁸

Therefore, children are likely to be active to engage and have a role as adult in the community. This current study also revealed that children who were physically active

showed higher resilience. Study by Taylor and Fraser and Pakenham reported that children who feel that they are physically strong enough to do many things, so they tend to have better resilience.^{18,19} Furthermore, by behaving positively and physically active, children are easily engaging in spiritual activity. As revealed in this study, children who actively involving in spiritual activity showed to be higher of resilience. It is because the spiritual makes children realize that the hardship situation can only pass when they get closer to the God. Spirituality of children increases their resilience along with their activity in spiritual belief. This is supported by the previous study that resilience of children is strongly influenced by belief.²⁰

In multiple regressions with enters method, only spirituality that accepted as an internal predictor factor of resilience in children who exposed to major flood. Current study recognizes that spirituality is important factor to determine the level of resilience. This is relevant with previous finding mentioned that resilience-related beliefs can forecast of the ability of children to become more resilient.²⁰ As the characteristic of population in this study had a religion-school activity in the afternoon, so it possibly influences the level of resilience. Even though children are limited in term of cognitive, especially in aspect of spirituality. However, by implemented their daily spiritual activity, children are automatically increasing their level of resilience.

Limitations

Although this study has reached its aims, but there are some unavoidable limitations. First, this study was deployed a very unique group of population, so generalization of the finding could not be justified as with a more diversified population, and second, the trends of declining of grade point average of children were not definitely known due to the limited of data

CONCLUSION

This study aimed to identify internal factors that predict resilience of elementary school-aged children after floods 2013. To be resilient, children need protective factors. The study found that high spirituality increases the resilience of children. Therefore, spirituality is thought-out as an internal protective factor. As all participants in this study were Muslim, this study suggests the development of nursing interventions such as stress reduction activities by involving religious Islamic school.

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