

# IMPACT OF THE PHYSICAL EDUCATION AND SPORTS PROGRAMS ON CHILDREN' S PSYCHOSOCIAL AND SPIRITUAL DEVELOPMENT IN VOLCANO DISASTER-PRONE AREA

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(火山災害多発地において体育・スポーツプログラムが子どもの心理社会的およびスピリチュアルな発達に及ぼす影響)

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### 論 文 内 容 の 要 旨

Natural disasters such as volcano eruptions have an impact not only on the human victim's physical aspects, but also on their social, psychological, and spiritual aspects. The psychosocial and spiritual impacts of natural disasters on children have been examined in several studies. In this context, physical education (PE) and sports can have several benefits and be a means for the successful development of children's psychosocial and spiritual aspects. The associated variables of psychosocial and spiritual development can be explored by observing naturally occurring behaviors and social interactions of elementary school children in PE and sports in areas prone to volcanoes. Therefore, the preliminary, first, and second studies in this dissertation tried to investigate the impact of PE and sports programs on the psychosocial and spiritual development of children in the Merapi volcano disaster area in Yogyakarta.

The preliminary study aims to assess children's psychosocial skills and negative emotional states, develop a psychosocial skills scale, and examine the relationship between children's psychosocial skills and negative emotional states. Nine PE and sports teachers, four experts in the educational and psychological fields, 745 children in the disaster, urban, and suburban areas, and 810 children in the disaster-prone areas were involved in this study. The teachers participated in structured interviews, the experts reviewed the scale, and children completed the Depression, Anxiety, and Stress Scale (DASS) (Lovibond & Lovibond, 1995) and the Psychosocial Skills Scale (PSS). The qualitative analysis of teachers' interview results conducted through data display, reduction, and verification/conclusions. Statistical analyses conducted through one-way analysis of variance (ANOVA), exploratory and confirmatory factor analysis, multiple correlations, Cronbach's coefficient (Alpha), and Pearson correlation analysis. The teachers perceived that the children in all areas have essential and sufficient psychosocial skills but still require support on developing stress coping, communication, social awareness, and problem-solving skills. Children living in the disaster areas have a lower negative emotional state than those living in urban and suburban areas. The PSS with a four-subscale structure (stress coping, communication, social awareness, and problem-solving skills) was validated and found reliable, which was indicated by a good fit in construct validity, internal validity, and internal consistency/reliability. The negative emotional states have a delicate relationship with the psychosocial skills of children in the disaster-prone areas.

The first study aims to evaluate the effect of PE and sports programs on children's negative emotional states (depression, anxiety, and stress) and examine the effects of PE and sports programs on children's psychosocial skills (stress coping, communication, social awareness, and problem-solving). Fifteen PE and sports teachers and 810 elementary school children between the fourth and sixth grades in disaster-prone areas were involved in the study. Schools were randomly assigned to an intervention group and first and second control groups. The intervention group received a specially designed PE and sports program using psychosocial-based practices. The first and second control groups completed the pre-existing PE and sports programs over 28 weeks during the 2014-2015 academic year. The DASS and PSS were administered before and after the education programs. Two-way multivariate analysis of variance (MANOVA), two- and one-way analyses of variance (ANOVA), and paired sample t-tests were used to compare the mean of the groups at pre-test and post-test. A special psychosocial-based PE and sports program, which implemented as an intervention for children in the Merapi volcano disaster-prone areas had a significant impact in decreasing negative emotional states (depression, anxiety, and stress). Likewise, the program had a significant impact in increasing psychosocial skills (stress coping, communication, social awareness, problem-solving).

The second study aims to explore the effect of the PE and sports program on children's religiosity and spirituality in a volcano disaster-prone area. Fifteen PE and sports teachers and 881 elementary school children between fourth and sixth grades in disaster-prone areas (5 to 15 km from the top of the Merapi volcano) participated in this study. The 15 elementary schools randomly assigned to the intervention group and first and second control groups. The intervention group received a psychosocial and traditional-based PE and sports program while the control group completed PE and sports programs consistent with each school's existing program in the second semester of the 2015-2016 academic year. Data collected using the Religiosity and Spirituality Scale for Youth (RaSSY) (Hernandez, 2011). Two-way MANOVA, two- and one-way ANOVA, and paired sample t-tests were used to compare the three groups at pre-test and post-test. There was a significant impact of the psychosocial and traditional-based PE and sports program in improving children's religiosity and spirituality in volcano disaster-prone areas.