Journal of Pediatric Nursing xxx (2018) xxx–xxx

Contents lists available at ScienceDirect

Journal of Pediatric Nursing

The Effects of a Humor Intervention on the Physiological, Physical, and Psychological Responses of School-aged Children With Atopic Dermatitis in South Korea: A Pilot Study

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ARTICLE INFO

Article history:
Received 29 September 2017
Revised 2 January 2018
Accepted 2 January 2018
Available online xxxx

Keywords:
Atopic dermatitis
Children
Laughter therapy
Physical
Physiological
Psychological

ABSTRACT

Purpose: We examined the effects of a humor intervention on the physiological, physical, and psychological responses of school-aged children with atopic dermatitis.
Design and Methods: This quasi-experimental study used a nonequivalent control group and a pre- and post-test design. Forty-five schoolchildren participated.
Results: Children in the experimental group (n = 26) received a humor intervention and reported significant differences in physiological response, which was evidenced by heightened salivary immunoglobulin A levels as compared to the control group (n = 19). Additionally, the psychological response of the experimental group was significantly different from that of the control group as evidenced by decreased stress levels.
Conclusion: Humor intervention may be an effective nursing intervention for children with atopic dermatitis.

Background

Atopic Dermatitis in School-aged Children

Atopic dermatitis (AD) is the most common chronic inflammatory skin disease that occurs during childhood, affecting approximately 10–20% of children and increasing worldwide (Ersser et al., 2014; Wang, Wang, & Yeh, 2016). Per the Korea Ministry of Health and Welfare (2016), the percentage of elementary school students diagnosed with AD has steadily increased since 1995. AD is most common among school-aged children (18.5%) compared to other age groups (Lee, 2012, unpublished data). The increasing prevalence of skin diseases and difficulties that accompany them makes AD worthy of research attention.

AD may be caused by a genetic predisposition and environmental conditions, including hereditary factors, allergens, and immunological factors (Ersser et al., 2014). AD is characterized by itchy, inflammatory skin, which often causes the skin to crease, affecting the quality of life (QoL) of children and their caregivers (Ersser et al., 2014). It is also associated with rhinitis, conjunctivitis, and asthma in 25%–80% of children and may persist into adulthood (Cheng et al., 2015; Ricci, Bellini, Dondi, Patrizi, & Pession, 2012). School-aged children with AD are likely to struggle with not only stress, but also considerable absence from school because of execrated symptoms and healthcare expenditures (Wang et al., 2016). This leads to financial and psychosocial burdens on the individuals and society. Clearly, AD is a significant health problem for this age group.

Physiological, physical, and psychological responses to AD can be classified as follows. Physiological responses include immunoglobulin A (IgA) and cortisol levels. IgA is the first line of immune defense; therefore, its deficiency may reflect an immune-regulatory abnormality and is associated with severe infection (Alkhairy & Hammarström, 2015). It also plays a role in defending the skin (Moticka, 2016). Furthermore, saliva cortisol levels are elevated in response to stress.

As a physical response, pruritus is the primary and the most troublesome symptom of AD (Elman et al., 2010). Chronic pruritus, which is the main symptom of AD, significantly reduces QoL due to sleep disturbances, prolonged wound healing, and secondary skin changes due to scratching (Lewis-Jones, 2006; Slattery et al., 2011). However, current treatments depend on inconsistent and partial relief (Kabashima, 2013).

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https://doi.org/10.1016/j.pedn.2018.01.001
0882-5963/

Regarding psychological responses, AD symptoms are often aggravated by stress, which enhances allergen-induced skin wheal responses (Kimata, 2004b; Liezmann, Klapp, & Peters, 2011; Werfel et al., 2016). Through these connections, the vicious cycle continues. In addition, school-aged children in Korea are at an elevated risk for stress because of the highly competitive atmosphere for test scores or academic achievement (Koo & Lee, 2015). Problematic symptoms of AD such as deficiencies in IgA, elevated cortisol, pruritus, depression, and stress can adversely affect children's health, which may have a significant detrimental impact on a child's physiological, physical, and psychological responses. Until now, treatment of AD has typically focused on only the physical aspects; therefore, the treatment of AD can be as diverse as the condition itself.

Benefits of Humor Interventions

Humor uses interesting experiences and expressions to provide amusement by stimulating a playful discovery in one's everyday life (Association for Applied and Therapeutic Humor, 2010). Humor produces laughter and affects stress and behavior caused by physical and physiological changes (Schanke & Thorsen, 2014). Humor promotes people's health and wellbeing by decreasing depression, anxiety, stress, and pain (George & Jacob, 2014). Previous studies supported the effectiveness of a humor intervention in medical treatments and health promotion for stress reduction, and aids with skin problems such as allergic dermatitis (Kimata, 2004a; Kong, Shin, Lee, & Yun, 2014). Humor interventions also play a role in arousal reduction techniques such as relaxation (Ersser et al., 2014).

Humor interventions are relatively inexpensive, do not take long, and have no known side effects. Therefore, they can be implemented easily and cost-effectively as complementary therapy for ill people (Kong et al., 2014). There is less laughter in the lives of children with AD than in the lives of children without the disease because of repeated medical treatments, which lead to anxiety and depression; therefore, opportunities to promote humor can be strengthened (Sim, 2015). Moreover, school-aged children are in a developmental period when their sense of humor is being established; therefore, humor interventions may be more effective in this stage. However, most research examining AD in children have addressed a limited range of psychological interventions (Moore, Williams, Manias, Varigos, & Donath, 2009). Accordingly, the effectiveness of humor interventions has not yet been identified.

Theoretical Framework

Hans Selye's (1974) "Theory of Stress Adaptation Model" was used as a theoretical framework in this study (Fig. 1). This model explains that stress occurs as a response to a stressor, and it comprises psychological, neural, endocrine, and immunological components that can affect negative physiological, physical, and psychological responses. Psychological problems such as stress may provoke not only physical symptoms, but also hormonal imbalances and decreased immune function by overstimulating the nervous system. Humor, which brings joy to children, encourages them to adopt a positive perspective (Sim, 2015).

Many people with a disease exhibit similar symptoms due to the exposure to stress. Selye (1974) said that a stressor is an environmental stimulus that causes stress. Under stress, individuals show varied reactions. In addition, Sim (2015) reported that humor interventions can be useful in resolving disease-derived problems. We adopted this theory because we regarded AD as a stressor for children and they can exhibit physiological, physical, and psychological reactions.

No known studies included "theoretically based" interventions or identified the scientific effects of humor for school-aged children with AD. Previous research examining the processes affecting children's adjustment to AD are also limited (Dennis, Rostill, Reed, & Gill, 2006). Consequently, the focus of our study is to enhance children's physical and psychological well-being by utilizing a humor intervention as an effective nursing intervention.

Purpose

The purpose of this study was to test the effects of a humor intervention on (a) physiological (salivary IgA, salivary cortisol), (b) physical (pruritus), and (c) psychological (depression, stress) responses in school-aged children with AD.

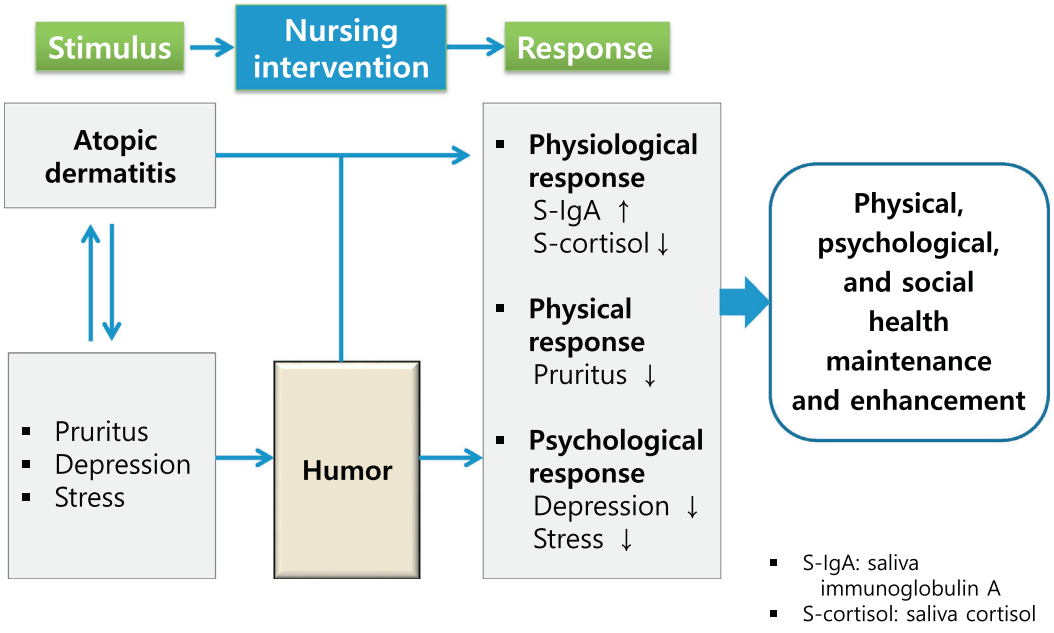

Fig. 1. Study framework.

Please cite this article as: Kim, S., et al., The Effects of a Humor Intervention on the Physiological, Physical, and Psychological Responses of School-aged Children With Atopi..., *Journal of Pediatric Nursing* (2018), https://doi.org/10.1016/j.pedn.2018.01.001