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Effects of a Clown–Nurse Educational Intervention on the Reduction of Postoperative Anxiety and Pain Among Preschool Children and Their Accompanying Parents in South Korea^{1,2}

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Received 9 January 2015; revised 23 March 2015; accepted 25 March 2015

Key words:

Children;
Day surgery;
Nursing;
Preschool;
Strabismus

This study examined the effects of a clown–nurse educational intervention on children undergoing day surgery for strabismus. This was a quasi-experimental study, using a nonequivalent control group, non-synchronized design. Fifty preschool children and their parents were invited to participate. The children in the intervention group ($n = 23$) received clown therapy and subsequently reported significantly lower states of physiological anxiety, which was evidenced by systolic blood pressure, standardized behavioral anxiety tests, and post-surgery pain, than the control group ($n = 27$). In addition, the parents in the experimental group showed a low state of physiological anxiety, evidenced by systolic blood pressure, pulse rates, standardized behavioral anxiety tests, and state-trait anxiety. The use of preoperative clown intervention may alleviate postoperative problems, not only for children, but also for their parents.

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Background

SURGERY IS CONSIDERED a negative life event, and it can be a very threatening experience, usually causing distress. It could be especially traumatic for children, as demonstrated by reports that many children experience significant anxiety in the preoperative period (Fortier, Del Rosario, Martin, & Kain, 2010a; Lee et al., 2013). An estimated 40–60% of children who undergo surgery exhibit high levels of anxiety (Wright, Stewart, Finley, & Buffett-Jerrptt, 2006). Such high levels of anxiety prior to surgery can cause psychological and physiological problems for the children that may extend beyond the immediate surgical

procedure (Jlala, French, Foxall, Hardman, & Bedforth, 2010; Lee et al., 2013).

Children are usually more vulnerable to surgery-related stress than are people of other age groups because of the developmental characteristics, limited cognitive capacity, lack of self-control, greater dependence on others, fear of pain, and limited understanding of surgery (Fincher, Shaw, & Ramelet, 2012; Ghabeli, Moheb, & Hosseini-Nasab, 2014). In addition, the hospital environment is characterized by unfamiliar faces, unfamiliar routines, surgical instruments, hospital procedures, and fear of pain; all of these are possible sources of stress (Ghabeli et al., 2014; Yip, Middleton, Cyna, & Carlyle, 2009).

According to Piaget's theory (1972), preschool children (i.e., 3–6 years old) are in the preoperational stage of cognitive

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development. They typically engage in magical thinking and, therefore, cannot think logically and cannot adequately distinguish between reality and fantasy (Lee et al., 2013). For this age group, negative events such as surgery may lead to preoperative anxiety. Based on previous research, younger children tend to be more anxious and have more negative reactions to surgery than do older children (Ahmed, Farrell, Parrish, & Karla, 2011).

The number of same-day pediatric surgeries being performed is increasing worldwide (Brewer, Gleditsch, Syblik, Dietjens, & Vacik, 2006; William, Lopez, & Lee, 2007). The introduction of pediatric day surgery brings some benefits, including relatively short hospital stays, low predisposition to hospital-borne infections, reduced healthcare costs, and limited behavioral changes among the children involved (Ghabeli et al., 2014). Despite these advantages, preoperative psychological preparation of children and their caregivers is lacking (Ahmed et al., 2011; Jjala et al., 2010). Nurses could provide psychological interventions aimed at minimizing anxiety levels in the hours before surgery (Ghabeli et al., 2014).

Parental anxiety is also a common problem during pediatric surgery due to parental worries and fears, including those related to the pain experienced by the child. Parental anxiety can be quite frightening for children (Esteve, Marquina-Aponte, & Ramirez-Maestre, 2013; Jjala et al., 2010) and may ultimately increase children's anxiety (Fincher et al., 2012; Fortier et al., 2010a). Helping children and their families cope with the stress of surgery is one of the most vital responsibilities assumed by nurses (Ghabeli et al., 2014), and to this end, nurses could develop effective preoperative preparation plans. To reduce the level of preoperative anxiety in children, a number of strategies could be employed (Koo, 2008).

Currently, humor is considered central to some of the approaches and is the most widely used approach for reducing fear, stress, and anxiety in the hospital context. Since the 1970s, studies have reported that humor has positive effects on physical and psychological health and well-being (Bennett & Lengacher, 2008). In pediatrics, the use of humor is quite prevalent, as evidenced by the use of clowns (Golan, Tighe, Dobija, Perel, & Keidan, 2009; Koller & Gryski, 2008; Meisel et al., 2010).

Therapeutic humor can improve patients' mental and physical health (Ganz & Jacobs, 2014; Low et al., 2014). This observation is linked to the assumption that humor and patient well-being are closely related to one another (Bennett & Lengacher, 2008). A clown doctor is a specially trained professional artist who is a skilled and valued member of a clinical team working in a therapeutic program within a healthcare setting (Pendzik & Raviv, 2011). In pediatric healthcare settings, clown doctors began to work in hospitals in 1986, and the number of clown doctors providing services has continued to increase (Dionigi, Flangini, & Gremigni, 2012). The provision of care to sick children by clowns is one of the methods that can positively change the emotional state of patients and their perceptions of the environment during treatment (Koller & Gryski, 2008; Warren, 2008).

Clowns spread happiness to children and alleviate their suffering, thereby directly empowering recipients; clown humor is also increasingly being recognized as beneficial for children in hospitals (Dionigi, Saniori, & Flangini, 2014). Studies on clown interventions suggest that these might decrease distress among children and increase their cooperation during medical procedures (Bertini, Isola, Paolone, & Curcio, 2011), helping to distract the children and create a positive hospital atmosphere. Further, these interventions are used in clinical settings in many countries, with the aim of reducing anxiety among children who are undergoing surgery (Dionigi et al., 2014; Fernandes & Arriaga, 2010; Meisel et al., 2010; Pendzik & Raviv, 2011; Vagnoli, Caprilli, & Messeri, 2010). However, clown-nurses are not currently used for children in this manner in South Korean hospitals, and no local research has examined the efficacy of such an intervention. For these reasons, we examined the use of clowns as an intervention for the prevention of preoperative anxiety among children and its possible effects in decreasing the development of negative problems post-surgery (Ahmed et al., 2011; Brewer et al., 2006; Dionigi et al., 2014; Fincher et al., 2012). Such efforts could increase knowledge regarding the effectiveness of clown therapy as an alternative intervention aimed at reducing surgery-related anxiety among both children and their parents. In addition, it may accelerate attempts to use clowns and humor in hospital settings.

Accordingly, the purpose of this study was to determine the effects of clown-nurse educational interventions during the preoperative education process in day surgery and to measure its effect on both children's and parents' anxiety levels and children's post-operative pain.

Method Design

A quasi-experimental, nonequivalent control group, non-synchronized design was used. We examined the effects of a preoperative clown-nurse educational intervention on the postoperative outcomes of preschool children undergoing day surgery and those of their parents.

Setting and Participants

This study was carried out in one of the largest national hospitals in Seoul, South Korea, which includes a children's hospital (with 1,792 beds) with an established day surgery unit. Participants, who were preschool children scheduled to undergo day strabismus surgery, were recruited from a national hospital located in Seoul, Korea. The participants were assigned to the following two groups: (1) the intervention group, comprising children who came into contact with a clown-nurse before entering the operating room; and (2) the control group, comprising children who had received routine preoperational care. Only one surgeon was involved in this study, and thus, the surgical operations of the children in the two groups were performed by the same ophthalmologist.

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