



**APPLICATION OF KOLCABA THEORY IN CHILD PATIENTS
WITH PAIN PROBLEMS IN THE INFECTION ROOM**

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ABSTRACT

Pain is a health problem to consider especially for children and adolescents. Studies showed 15-35% of children in the nonclinical population suffered persistent and chronic pain. This study aims to provide an overview of the fulfillment of comfort needs in children with pain problems through the provision of Virtual Reality interventions. The application of Kolcaba's theory in providing nursing care for children with pain problems can provide holistic benefits and guide nurses in conducting systematic assessments. The application of virtual reality as an intervention in nursing care has also been proven to provide a sense of comfort and reduce pain and anxiety. The method used is a case study with a nursing care approach to 5 patients with pain problems aged > 10 years. The comfort level will be measured using the Comfort Behavior Checklist Scale. Cases were taken in the pediatric infection room of National Referral Hospital DR. Cipto Mangunkusumo

Keywords: Pain; Kolcaba's Theory; Virtual Reality.

INTRODUCTION

Mitral valve (MV) diseases are the second most common clinically significant type of valvular defect in adults. The annual incidence of degenerative MV disease in developed countries is estimated to be between 2% and 3% (Madesis et al., 2014). More than one in eight persons over 75 years suffers from either moderate or severe valvulopathy (Dziubek et al., 2018). Mitral stenosis (MS) and mitral regurgitation are two examples of MV diseases (MR). MV diseases are becoming more common as part of the aging process's degenerative changes. Other clinically significant causes of MS and MR include cardiac ischemia, infective endocarditis, and rheumatic disease, which is more common in developing countries (Holmes et al., 2017; Madesis et al., 2014).

The MV is one of the four valves in the heart, located between the left atrium (LA) and the left ventricle (LV). Its complex geometry, which includes the mitral annulus, anterior and posterior leaflets, and the subvalvular apparatus, prevents blood from flowing backwards as it moves through the heart (Oliveira et al., 2020; Zamorano et al., 2014). Within the

high-pressure systemic environment, these structures work in unison to open during diastole and close during systole. Morphological changes in the valve can affect mechanical integrity, resulting in abnormal leaflet closure and blood regurgitation back into the left atrium, resulting in ventricular pressure and forward flow loss (McCarthy et al., 2010).

MV diseases can be treated through MV replacement or repair (Dziubek et al., 2018). MV interventions can be performed using either open surgery or minimally invasive techniques (Harky et al., 2021). Surgical MV repair is the gold standard for treating primary degenerative MR, with approximately 95% of patients treated in designated centers, while the remaining 5% will be considered for one of three transcatheter MV repair, transcatheter MV replacement, or percutaneous transluminal valvuloplasty (Harky et al., 2021; Hensey et al., 2021). In general, MV replacement is considered in high-risk patients or in patients whose MV are irreparable (Dziubek et al., 2018; Harky et al., 2021). MV replacement interventions implant nearly 280,000 prostheses worldwide each year (Dziubek et

al., 2018). Mitral valve replacement is currently one of the most common treatments for rheumatic fever, the main underlying etiology of MV diseases in developing countries (Moreira et al., 2021).

Despite the fact that MV replacement is sometimes the best option for treating MV diseases, it is fraught with complications. Operative mortality from isolated mitral valve replacement has been reported in 4% to 7% of patients. The most common postoperative complication, thromboembolism, has been reported to occur at a rate of 1.5% to 2.0% per patient-year (Moreira et al., 2021). Other complications related to MV replacement are the higher risk of re-operation compared to MV repair, endocarditis, paravalvular leaks, prosthetic valve degeneration, valve embolism or migration, and left ventricular outflow tract obstruction (LVOTO) (Fan et al., 2021; Hensey et al., 2021; Kargoli et al., 2021; Moreira et al., 2021; van der Merwe & Casselman, 2017). This literature review will explore the various complications related to MV replacement.

RESEARCH METHODS

The researchers found five cases. The diagnosis of each case was complex. The first case, the child with initial K (15 years old). The diagnoses were Pleural Effusion and TB on OAT. The second case, the child with an initial F (13 years old). The diagnoses were spondylitis TB, Anemia, melena, bone trauma os sacrum, and suspect of neurogenic bladder. The child with initial A (10 years old) with Hospital Acquire Pneumonia, asthma bronchial, nephritis cc sepsis dd autoimmune, and bilateral pleural effusion. The child with initial A (13 years old) with pleural effusion dextra post-insertion, WSD, TB bronchial on OAT, and primary bone tumor dd osteomyelitis. The child with initial F (17 years old) with periodic paralysis, hypokalemia, constipation.

RESULTS AND DISCUSSION

The results of the described implementation facilitated the analysis.

The patients experienced the main problem. It was the acute pain. The acute pain appeared due to nociceptor activation by a strong and threatening stimulus toward the completeness of the tissue. The pain mechanism occurs due to the processes of transduction, conduction, modulation, transmission, and pain perception. The pain perception occurs during the transduction process due to an electrical impulse that causes conduction or deceleration toward the nerve. Thus, the modulation process occurs simultaneously. The process of impulse transfer or transmission occurs inside the brain. It causes pain and emotional responses so that pain is perceived subjectively as personal experience (Aribawa, 2019).

Pain also influences the breathing system due to pleural effusion. It happens because of the accumulated liquid inside of pleural cavity. Infection may increase the risk of capillary permeability, exudate, hydrostatic pressure, transudate, abnormal lymphatic cleanse or chylous effusion, and bleeding inside of hemothorax or pleural cavity. The hemothorax or pleural cavity facilitates the inspiration and expiration mechanisms while breathing. Thus, if a problem occurs inside of the hemothorax, it disturbs the breathing pattern (Adeyinka et al, 2021). A hemothorax is a thin layer covered with a serous membrane. It covers the lungs and separates the lungs from the hemothorax. The amount of the liquid inside of the hemothorax is balanced by the oncotic and hydrostatic pressures between the thorax and the intravascular components, supported with perilymphatic drainage. Transudate has the role to formulate the subtle balance disorder between the pleural liquid production and absorption.

In one case of three patients with pleural effusion diagnosis, none of them had WSD installed. The pleural effusion does not occur due to the virus. Afsharpaiman (2016) argues that pleural effusion does not only show the symptom of autonomous recovery without medication. Thus, the drainage process is required for patients with the indication of

pleural cavity enlargement.

Kolcaba implementation is easy but it takes a longer time to review via psychospiritual and sociocultural aspects. For children older than 10 years old, nurses must have excellent diagnosing and analyzing skills. The evidence of the third and fourth case-patients showed that the nurses only did not promote excellent physical diagnosis. Thus, the medical care management took a long time and affected the required checkup. However, if the nurses could diagnose correctly and comprehensively in terms of the psychospiritual aspect, they could find the occurring problems and could support the accurate diagnosis. However, before diagnosing the psychospiritual aspect, nurses need specific time in guiding the trust relationship with the children or families. It makes Kolcaba implementation easy and systematic but taking a long time to diagnose.

The same thing went for psychospiritual and sociocultural comfortability. Kolcaba argues that psychospiritual comfortability covers the psychological, self-confidence, and meaning of life. On the other hand, sociocultural values deal with interpersonal, family, and social relationships (Kolcaba, 2003). They found similarity was the required time to diagnose the sociocultural aspect since it dealt with the meaning of life and it had the interpersonal relationship.

Kolcaba has not created the guideline of nursing care diagnosis formulation. Thus, the diagnosis requires caring analysis and support, such as the use of the NANDA book and the Indonesian nursing diagnosis standards. Kolcaba also does not describe the sociocultural diagnosis formulation implicitly so the psychological hindrances are different for each implementation and require anxiety standard measurement to apply the diagnosis accurately.

Bice & Wiyatt (2017) used the psychosocial assessment with PPHCA to evaluate the pediatric holistic comfortability. The assessment is useful to

evaluate anxiety. The residents determine the diagnosis based on Maslov's necessity levels and urgency levels with the Indonesian nursing diagnosis standards and Nanda (2017).

Herdnan & Kamitsuru (2014) explain that the nursing diagnosis refers to clinical assessment toward human responses with the susceptible condition of the individual, family, and group health. Diagnosis refers to clinical care reasoning results because of the importance of the intervention. The assessment basis should refer to the comprehensive global assessment to make it accurate (Pinto et al, 2016).

The intervention prioritized the holistic and multidimensional Kolcaba standards to reach the required comfortability. It needs three aspects. They are standard of comfort, coaching, and comfort food for the soul. Standard comfort refers to the assistance and the endurance to recover the physical function from the comfortable situation and prevent further complications. The second one is coaching or teaching the design to lose the anxiety, to provide information and expectation, and to facilitate the recovery processes. Third, the comfort food for the soul consists of the comfortable intervention for the soul or psychological aspect. Thus, the patients can improve their tranquility (Alligood, 2014).

The intervention is based on the comfortability of the five patients with a pain problem. However, they had similarities in terms of the intervention, with the Kolcaba approach. The repetition of the intervention writing could be the pain intervention. The nurses provided the standard comfort with pain management in the forms of distractive techniques, such as listening to the music, reading, and using VR. The nurses coached the distractive technique for the patients and provided external amusement to create comfort via the external environment as the comfort food for the soul intervention. The managements were the same so it required clear reference and strategy to provide the pain intervention.

Mukesh (2016) mentions that the applied intervention must be integrated so it

could get the best benefits. The implementation for 5 years old children with laparotomy requires integrative comfort care. The result could improve the comfortability of the patients and all patients' needs were holistically fulfilled.

The strong points of the intervention were evidence-based practice. Thus, nurses could provide the care professionally based on the evidence. Ilmiasih (2007) also found the same matter while providing family-centered care. Krinsky (2014) did the intervention by giving quiet time for patients with heart diseases.

Kolcaba facilitated the nurses by providing professional nursing care based on the evidence. However, pain management should also have a guideline to administer the management. The discussion of the implementation limitation revealed the nurses' need for time to administer the pharmacological and nonpharmacological treatments. Thus the applied and expected results were clear.

Evaluation the Kolcaba theory application supported the problem detection and plan to follow up. Kolcaba divides the levels of comfortability so nurses could easily evaluate the required matters.

The expected results of the implementation based on Relief, Ease, and Transcendence showed the scale of comfortability used CBC. Only one case out of 5 that met the transcendence comfortability of all Kolcaba's aspects. It was influenced by the adaptation and the suffered disease of the child. The patients, for the other four cases, could go home with further medication due to their health problems. Thus, they were at the ease level of comfortability. From five pain cases, four cases reached the transcendence comfortability and one case with the ease comfortability level. The ease of comfortability level was indicated by losing pain and decreasing consumption of opioids.

Berntzen (2020) found nurses could not meet all the identified needs of comfortability. The conceptualization of comfortability does not deal with the

presence of comfort or comfortability. The conceptualization deals with the comfortability level experienced by the patients. Comfortability is a symptom perception and pain experience to reach the quality of life wellbeing via satisfaction of the existential necessity (Pinto et al, 2016).

CONCLUSION

Mitral valve (MV) disease is the most common valvular heart disorder. Mitral stenosis (MS) and mitral regurgitation (MR) are the two most common MV diseases. MV diseases can be treated with MV repair or MV replacement procedures. Both types of interventions are available via open surgery or minimally invasive techniques. The gold standard for treating MV diseases remains surgical MV repair. However, MV replacement is preferred when the MV is considered irreparable or in high-risk patients. Endocarditis, paravalvular leaks, prosthetic valve degeneration, valve embolism or migration, and left ventricular outflow tract obstruction (LVOTO) are some of the complications associated with MV replacement.

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