

# Efficacy of Relaxation Intervention on Pain, Self-Efficacy, and Stress-Related Variables in Patients Following Total Knee Replacement Surgery

■ ■ ■ *Yee Chen Lim, BSN, RN, Piyanee Yobas, PhD, RN, and Hui-Chen Chen, MSN, RN*

## ■ ABSTRACT:

Following total knee replacement (TKR) surgery, patients frequently experience intense levels of pain, stress, and anxiety that may reduce their self-efficacy and thus affect their postoperative recovery. Relaxation intervention is beneficial to help patients manage physical pain and emotional tension. However, evidence for the efficacy of relaxation intervention on patients following TKR is still inconclusive. This study aimed to investigate whether a relaxation intervention helped to reduce pain, stress, and anxiety, and whether it helped to increase perceived relaxation and self-efficacy in patients following TKR. A single-group, pretest-posttest quasi-experimental study was carried out at a tertiary hospital in Singapore. A convenience sampling of 18 participants was recruited. Patients received three-session, individual-based relaxation interventions comprised of breathing exercises, muscle relaxation, and guided imagery. Data were collected by self-reported questionnaires and physiologic measures and were analyzed using descriptive statistics, paired *t* test, and repeated measure analysis of variance. Intent-to-treat analyses were used to deal with missing data. Following the intervention, participants reported significantly lower pain, stress, and anxiety and greater perceived relaxation and self-efficacy. Findings from this study contribute to both nursing science and clinical practice. The relaxation intervention can be offered as part of standard care for patients following TKR in hospitals.

© 2014 by the American Society for Pain Management Nursing

Total knee replacement (TKR) surgery is a common treatment option for osteoarthritis. TKR involves excision of the damaged end of the knee joint and insertion of a metal or plastic prosthesis (Lucas, 2008b). TKR often is cited as one of

*From the Alice Lee Centre for Nursing Studies, National University of Singapore, Singapore.*

*Address correspondence to Hui-Chen Chen, MSN, RN, Senior Lecturer, Alice Lee Centre for Nursing Studies, National University of Singapore, MD11, 10 Medical Drive, Singapore 117597. E-mail: [nurch@nus.edu.sg](mailto:nurch@nus.edu.sg)*

*Received March 20, 2013;  
Revised February 12, 2014;  
Accepted February 13, 2014.*

1524-9042/\$36.00  
© 2014 by the American Society for Pain Management Nursing  
<http://dx.doi.org/10.1016/j.pmn.2014.02.001>

the most painful surgeries because it involves extensive muscle and skeletal tissue repair (Büyükyılmaz & Aşti, 2013; Pasero & McCaffery, 2007). After TKR surgery, patients are usually hospitalized for approximately 5-7 days (Lucas, 2008b). During the recovery period, great emphasis is placed on restoring strength and flexibility of the knee joint and regaining independence in functional mobility (Lucas, 2008a). Limited attention is paid to patients' psychological issues following TKR. In fact, patients often experience intense levels of pain and stress after the surgery. Evidence indicates that patients continue to experience pain, fatigue, functional impairment, and psychosocial problems following discharge from the hospital after TKR or total hip replacement surgeries (Barksdale & Backer, 2005).

The initial recovery period at home can be stressful for the patients because they need to manage their own health and daily living demands without medical and nursing support (Barksdale & Backer, 2005). Additionally, problems with health and illness transitions such as unrealistic expectations of recovery time could cause stress (Showalter, Burger, & Salyer, 2000). The trajectory of recovery following TKR is quite variable (Showalter et al., 2000). If the recovery period takes longer than expected, patients may feel stressed by what they perceive as a prolonged recuperation process (Showalter et al., 2000).

Stress triggers the body to react through a fight-or-flight response, involving a set of physiologic changes that prepare individuals to deal with a threat or crisis (Seaward, 2006). The response can lead to an activation of the sympathetic nervous system, resulting in increased blood pressure and pulse rate and reduction in skin temperature (Ebrecht, Hextall & Kirtley, 2004). High levels of stress can cause an increase in the cortisol hormone, which in turn delays the initiation of the inflammatory effect and impairs wound healing (Worley, 2004). Furthermore, it is believed that stress can decrease individuals' pain threshold and reduce their pain tolerance (Solowiej, Mason, & Upton, 2009). Patients may have an increased perception of pain as their stress levels increase (Solowiej et al., 2009). Without proper management, higher stress levels may affect recovery and delay the patient's return to daily activities.

Studies have shown that self-efficacy can improve a patient's ability to manage his or her own health (Bandura, 1977). Individuals' physiologic or emotional states could affect their self-efficacy judgment with respect to a specific task (Bandura, 1986). Patients may doubt their competence at performing the rehabilitation activities due to increased level of patients' stress and anxiety with intense postoperative pain (Barlow, 2010; Lucas, 2007). The unpleasant emotional

arousal of doubt can lower patients' perception of self-efficacy and affect their perceived abilities to accomplish rehabilitation exercises, resulting in prolonged postoperative recovery (Barlow, 2010).

Few studies were carried out to examine the efficacy of relaxation interventions in reducing postoperative pain among patients following TKR surgery, and findings are somewhat conflicting. One randomized control trial (RCT) documented that post-TKR patients who listened to a 30-minute relaxation CD and received a 10-minute back massage twice daily reported significantly lower pain intensity and anxiety than control participants (Büyükyılmaz & Aşti, 2013). Similarly, another RCT found that patients who listened to a 20-minute guided imagery audiotape twice a day had significantly less pain and anxiety during postoperative days (PODs) 1-3 (Antall & Kresevic, 2004). Conversely, other studies (Pellino et al., 2005; Thomas & Sethares, 2010) did not support the efficacy of relaxation interventions. In one RCT, participants who received a relaxation kit (containing relaxation music, an audiotape to guide the patient through progressive muscle relaxation, a stress ball, and a relaxation booklet) did not report less pain and anxiety than control group patients (Pellino et al., 2005). In this study, the nature of the booklet was unclear. The authors did not provide information regarding contents of the booklet, methods of delivering booklet, and frequencies of using the booklet. The authors did not address use of the booklet as part of the outcome measurements. Thus, this may be one of the study's limitations. In a quasi-experimental study (Thomas & Sethares, 2010), patients in the intervention group who listened to a 16-minute guided-imagery CD twice daily for 5 days before TKR surgery and twice daily for the POD 1-3 did not report lower pain and anxiety than the control group patients.

Studies on patients undergoing TKR are sparse and the current evidence is insufficient to make a clear determination of the efficacy of relaxation intervention. Most studies (Antall & Kresevic, 2004; Büyükyılmaz & Aşti, 2013; Pellino et al., 2005; Thomas & Sethares, 2010) of patients undergoing TKR focus on evaluation of the effectiveness of guided imagery and deep breathing exercises on postoperative pain and anxiety. To our knowledge, there are no published studies examining the effects of relaxation intervention on levels of stress, perceived relaxation, and self-efficacy in patients following TKR, indicating knowledge gaps in the literature. Therefore, this study aimed to minimize the knowledge gaps and expand empirical evidence concerning relaxation interventions among patients

Download English Version:

<https://daneshyari.com/en/article/2678000>

Download Persian Version:

<https://daneshyari.com/article/2678000>

[Daneshyari.com](https://daneshyari.com)