The Effects of Guided Imagery on Affect, Cognition, and Pain in Older Adults in Residential Care

A Randomized Controlled Study from Thailand

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ABSTRACT

Few studies have examined the effects of guided imagery on older adults in residential care. This study aimed to evaluate the outcome of group-delivered guided imagery over a 16-day period with a sample of Thai older adults in residential settings (N = 31). Residents were randomly allocated to the guided imagery treatment group or usual care control group. No significant differences were found between the two groups regarding affective states, cognitive functioning, or pain. The results are discussed in relation to a ceiling effect and other methodological factors that may have contributed to the lack of positive outcomes. As the evidence base remains inconclusive, it is hoped that future studies will seek to establish the effects of using guided imagery with older adults in residential care.

In Thailand, the vast majority of older adults live with their families (Suwanrada, 2009). This trend is most likely spurred by the highly collectivist societal structure (FTIM International, n.d.) and strong cultural values that encourage people to take care of their parents (Komin, 1990). Older adults who do not have caregivers or have been “abandoned” by family may be eligible for residence at a state-operated care home. Such care homes are scarce, as is research concerning their residents. Nonetheless, given the sociocultural context, it can be inferred that residents often experience adversity prior to arrival at care homes, thus placing them at further risk of physical and mental health problems.

As such, care home residents in Thailand, as well as internationally, are in need of effective interventions that alleviate psychological distress and physical pain and delay cognitive decline. Nonpharmacological treatments are advantageous, given older adults’ vulnerability to the side effects of psychoactive medications (Burns & Baldwin, 1994). Furthermore, finite resources mean that inexpensive, efficient, and easy-to-administer therapies are desirable.

One therapy with the potential to encompass all of these elements is guided imagery. Guided imagery has a promising evidence base for improving a range of physical and psychological states with younger adults (Elser, 1999), and there is preliminary evidence for using guided imagery with community-dwelling older adults. For example, Baird and Sands (2006) found that a 12-week guided imagery intervention increased health-related quality of life in 14 older women with osteoarthritis. Nonetheless, research with older adults in residential care is extremely limited, thus providing the impetus for the current study.

WHAT IS GUIDED IMAGERY?

Guided imagery is a cognitive technique that teaches individuals to use their own imagination to influence psychological and physiological states (Tusek, Church, Strong, Grass, & Fazio, 1997). It usually begins with relaxation to induce an altered state of awareness and concentration, which helps individuals control their thought processes and generate vivid images (Leuner, 1977). Once relaxed, individuals are guided to imagine positive and peaceful images. They are prompted to focus on the details of these images using all of their senses in the absence of external stimuli (Tusek & Cwynar, 2000).

Guided imagery scripts may contain generic pleasant or specific imagery. Pleasant imagery involves suggestions of visualizations of peaceful scenes, such as a beautiful beach. In contrast, specific imagery includes suggestions for the desired physiological, psychological, or behavioral change (Elser, 1999). Specific imagery can be process-oriented or outcome-oriented. Process-oriented images describe the mechanism by which the desired outcome is achieved (e.g., “As you breathe deeply, the tension in your muscles is being released”), whereas outcome-oriented images describe the final desired result (“You feel relaxed and content”) (Elser, 1999).

Soothing music can be added to enhance relaxation and shut out distracting background noises, which is particularly useful in busy care settings (Tusek & Cwynar, 2000). Guided imagery has been used successfully in a variety of formats, including live guided imagery, where a health care professional speaks directly to patients, and audio-recorded guided imagery, and with both individuals and groups of patients (Elser, 1999). Guided imagery has been considered for its effectiveness, affordability, and simplicity of administration (Ackerman & Turkoski, 2000, Apostolou & Kolacba, 2009, Tusek & Cwynar, 2000).

THEORETICAL BASIS FOR GUIDED IMAGERY

Guided imagery is hypothesized to alleviate depression and anxiety by modifying the negative cognitive processes that maintain these affective states (Folkman & Moskowitz, 2000), thereby contributing to an improvement in feelings about oneself and the world (Apostolou & Kolacba, 2009). Indeed, Turner and Jensen (1993) reported a significant decrease in maladaptive thoughts in a clinical sample following a 6-week guided imagery intervention. With regard to pain, the alleviating effects of guided imagery have been explained by Gate Theory (Melzack & Wall, 1965). According to Gate Theory, only one impulse can travel up the spinal cord to the central nervous system at a time. Thus, if the route is blocked by pleasant stimuli, the perception of pain is decreased and the amount of painful stimuli sent to the brain is diminished (Jarf & Nirschl, 1993). Moreover, positive cognitions and relaxation are known to facilitate the release of endorphins, which bind to opioid receptor sites in the central nervous system and block the transmission of painful impulses (Bloom, 1981). This in turn has a feedback response where pain increases relaxation, thereby activating the parasympathetic nervous system to decrease blood pressure, respirations, and heart rate (Donavan, 1980; McCance & Huether, 1998).

In summary, cognitive-behavioral theories contend that guided imagery induces adaptive cognitions, which elicit affective and physiological responses that have a beneficial impact on the central and peripheral nervous systems (Elser, 1999). Accordingly, a reciprocal interaction occurs between the body and mind, where positive changes to one contribute to beneficial states in the other.

EVIDENCE BASE FOR GUIDED IMAGERY

In reviewing 46 guided imagery studies, Elser (1999) found that 87% led to improvements in psychological or physiological states. She concluded, “There is preliminary evidence for the effectiveness of guided imagery, particu-
Evidence for the use of guided imagery for pain was provided by a Thai study that used guided imagery with a sample of community-dwelling older adults who had undergone total knee arthroplasty (Chojojutro, Thosinag, Satayawarin, & Turajane, 2009). Patients who used guided imagery (n = 32) reported significantly less postoperative pain and anxiety compared with controls (n = 32). For pain management, it is noted that guided imagery using pleasant imagery may be more effective than specific imagery (Fernandez & Turk, 1989; Fors, Sexton, & Gotestam, 2002). Ellison (1999) suggested that specific imagery referring to physiological processes or pain-related words may trigger negative thoughts and images.

There is considerable evidence to suggest that guided imagery is effective for depression, anxiety, stress, and pain with younger adults, as well as some tentative evidence for using guided imagery with older (community-dwelling) adults, such as Chojojutro et al.’s (2009) and Baird and Sand’s (2006) studies described earlier. However, very limited empirical support exists for using guided imagery with older adults in residential care.

**STUDY AIMS**

Guided imagery could be a highly appropriate intervention for improving the well-being of older adults in residential care; however, further research is needed to clarify its effectiveness with this population. The aim of this study was to determine whether guided imagery improves affect, cognition, and pain among Thai older adults in residential care.

**METHOD**

**Sample**

The sample consisted of 31 older adults living in a Thai residential home. All participants had met the residential home’s eligibility criteria of being 60 and older, homeless, and having no caregivers or having been "abandoned" or rejected by caregivers. The catchment area for the nursing home spanned the whole of northern Thailand, and so residents may have come from afar. Hence, the sample represented a group of Thai older people, who may have endured difficult experiences prior to arrival at the residential home. All participants were described as “ethnically Thai.”

Residents meeting the sampling criteria were randomly allocated to the guided imagery or usual care group. Inclusion criteria were:

- Willing and able to sit for 20 minutes.
- Has no major hearing impairment.
- Has no psychotic symptoms.

Physically able to move to the guided imagery therapy room (with assistance).

There was no significant cognitive impairment, as indicated by education-adjusted cut-off scores on a Thai version of the Mini-Mental State Examination (MMSE) (Institute of Geriatric Medicine, Department of Medical Services, Ministry of Public Health, 2002). The residents were excluded with significant cognitive impairment, as research suggests that the measures we used may not be valid with this population (Closs et al., 2004; Montori & Jad, 1996). No other exclusions were made in response to baseline scores; we aimed to assess the benefits of guided imagery on well-being for residents with a range of clinical and subclinical symptoms. One resident who was allocated to the guided imagery group dropped out after three sessions and was thus excluded from the analysis.

**Sample**

The German version of the 20-item Perceived Stress Scale (Wongpakaran & Wongpakaran, 2010), where recommended cut-off scores for normal anxiety and mild, moderate, and severe anxiety are 0 to 19, 20 to 40, 41 to 60, and 61 to 80, respectively; T-PSS = Thai Perceived Stress Scale-10 (Wongpakaran & Wongpakaran, 2010), where scores range from 0 to 80, with higher scores indicating greater perceived stress.

**Baseline characteristics of the sample**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Usual Care (n = 16)</th>
<th>Guided Imagery (n = 16)</th>
<th>t Value</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>73.2 (6.74 years); range = 63 to 89</td>
<td>73.5 (6.98 years); range = 62 to 87</td>
<td>-0.22</td>
<td>0.904</td>
</tr>
<tr>
<td>Baseline cognition (MMSE-Thai2002)</td>
<td>23.6 (4.05)</td>
<td>23.88 (3.79)</td>
<td>0.525</td>
<td>0.974</td>
</tr>
<tr>
<td>Baseline depression (BDI)</td>
<td>12.57 (7.22)</td>
<td>8.75 (5.03)</td>
<td>1.700</td>
<td>0.100</td>
</tr>
<tr>
<td>Baseline pain (NRS)</td>
<td>3.4 (2.85)</td>
<td>4.19 (3.14)</td>
<td>1.070</td>
<td>0.293</td>
</tr>
<tr>
<td>Baseline anxiety (STAI)</td>
<td>39.08 (9.25)</td>
<td>35.56 (8.29)</td>
<td>1.078</td>
<td>0.291</td>
</tr>
<tr>
<td>Baseline stress (T-PSS)</td>
<td>15.54 (6.97)</td>
<td>15.13 (6.81)</td>
<td>0.079</td>
<td>0.938</td>
</tr>
</tbody>
</table>

**Note:** MMSE-Thai 2002 = Mini-Mental State Examination-Thai 2002 (Institute of Geriatric Medicine, Department of Medical Services, Ministry of Public Health, 2002), where scores range from 0 (cognitive impairment) to 30 (cognitive re-emphasis). T-PSS = The Perceived Stress Scale (Cohen et al., 1983), where scores range from 0 to 40, with higher scores indicating greater perceived stress.
oriented imagery (e.g., “As you breathe deeply, the tension in your muscles is being released”) and outcome-oriented imagery (e.g., “Your body is strong and flexible, and you are ready to face the day.”) Imagery and language that might have elicited negative responses such as referring to pain were avoided in light of studies that have reported minimal benefits with such content (Eller, 1999).

The scripts featured the voices of the second author and a nurse, who were selected for their pleasant voices. The scripts were recorded onto CDs in a professional recording studio. After the relaxation phase, soft and relaxing music with sounds of nature accompanied the pleasant imagery.

Validation Process

Prior to the intervention, one of the CDs was trialed with a sample of 21 residents, which included 8 patients with group scores of 75 or less on the MMSE-Thai-2002. Six members agreed that the CD sounded professional, had good sound quality, was relaxing, and elicited positive feelings. Three members were unsure whether they had fallen asleep during the script or if they had entered a deep phase of relaxation, comparative to a meditative state. Four members reported they had struggled to follow the pace of breathing dictated at the beginning of the script. However, the other 4 members stated that the pace had been “just right” for them. To resolve this quandary, we decided that prior to each session, a nurse would introduce the script and reassure residents that the breathing pace is there as a guide only, and residents should find a pace that is natural for them.

Measures

Thai Geriatric Depression Scale. The Geriatric Depression Scale (Yesavage et al., 1988-1982) includes 30 statements in which respondents give yes/no responses. The scale was selected for its easy administration and proven utility for detecting depression in older adults (Montoro & Inal, 1996). The scale has been translated into Thai and has demonstrated sound psychometric properties and cultural relevancy with a Thai population (Train The Brain Forum Committee, 1994). Scores range from 0 to 30, with higher scores indicating greater anxiety. The STAI has been researched extensively, showing good psychometric properties and applicability to culturally diverse populations (Folstein et al., 2000). Furthermore, the State Anxiety Inventory is useful for detecting anxiety in older adults (Kwak, Ulstein, Nordhus, & Engedal, 2005). The inventory has been translated into Thai and has demonstrated good psychometric properties with a Thai population, recommended cut-off scores for normal anxiety and mild, moderate, and severe anxiety are 0 to 19, 20 to 40, 41 to 60, and 61 to 80, respectively (Tangpanithandee, 2001).

Thai Geriatric Depression Scale-10. The Thai Geriatric Depression Scale (Cohen, Kamarck, & Mermelstein, 1983) measures the degree to which life situations are appraised as stressful. It includes 10 items for which respondents use a 4-point Likert scale to rate how unpredictable, uncontrollable, and overloading their lives are. Scores range from 0 (no depression and mild, moderate, and severe scores indicating increased perceived stress. The scale has been translated into Thai and has demonstrated sound psychometric properties with a Thai population, yielding a mean score of 13.53 (SD = 4.56) in a normative sample (Wongpakaran & Wongpakaran, 2010).

Numerical Rating Scale. In the Numerical Rating Scale (McCaffery & Pasero, 1999), respondents rate their level of pain on a horizontal numbered line that ranges from 0 (no pain) to 10 (worst pain ever). In this study, participants used the scale to rate their usual level of pain over the preceding 5 days. The scale was selected for its high suitability for older nursing home residents (Closs et al., 2004).

Mini-Mental State Examination-Thai 2002 (MMSE-Thai 2002). The MMSE (Folstein, Folstein, & McHugh, 1975) screens for cognitive impairment. It includes 30 items that provide information about orientation, attention, learning, calculation, delayed recall, and construction. A Thai version (MMSE-Thai 2002) has been tested on a Thai population and has socioculturally appropriate cut-off scores for dementia, which take into account a patient’s level of education. For patients with more than 6 years of formal education, the cut-off score is ≤22. For patients with 1 to 6 years of formal education, the cut-off is ≤17. Patients with no formal education, skip questions 4, 9, and 10, giving a possible total score of 23. For these patients, the cut-off score is ≤14. The MMSE-Thai 2002 has demonstrated good psychometric properties with a Thai population (Institute of Geriatric Medicine, Department of Medical Services, Ministry of Public Health, 2002).

Effect of Guided Imagery on Affect, Cognition, & Pain

Elsegood & Wongpakaran

Design

A pretreatment-posttest design was used to measure differences in affect, cognition, and pain between a randomized treatment group and a control group.

Procedure

The study was approved by the Faculty of Medicine ethics committee at the participating university. Prior to the study, the residential home had received no input from mental health professionals. The second author (a geriatric psychiatrist) was contacted and asked to train the nursing staff to screen for mental health problems and cognitive impairment in residents. After subsequent training, nursing staff administered the measures to all residents as part of a new care initiative, independent of this study. The MMSE-Thai 2002 was administered first to reduce fatigue effects on cognitive performance. Within 3 days of completing the measures, residents who met the sampling criteria were randomly allocated to the guided imagery or usual care group, and the guided imagery intervention commenced.

A total of 22 guided imagery sessions were held (once or twice per day) over a 16-day period. No sessions were held on weekends or national holidays due to reduced staffing levels. Residents were informed that the sessions were optional and they could attend as many as they wished; attendance was recorded. Each participant in the guided imagery group attended between 8 and 19 guided imagery sessions over the 16 days; the mean number of sessions attended was 14.25 (SD = 3.57). Participants in the usual care group did not attend any guided imagery sessions. The intervention was delivered in a separate room, which was unavoidably hot due to there being no air conditioning during Thailand’s summertime. All sessions were delivered in group format, with prerecorded CDs, facilitated by a trained nurse. The nurse checked that the residents were comfortable and advised them to find a pace of breathing that felt natural for them and not to worry about keeping up with the CD. Ten different guided imagery scripts, the structure and content of which are discussed in the Materials section, were used to keep the sessions varied and interesting. Throughout the 16-day period, the guided imagery and usual care groups participated in their usual activities, which involved daily exercise classes, twice-daily prayer groups, and once-daily entertainment activities (e.g., karaoke, movies, games), all of which were optional. Within 3 days of the end of the guided imagery intervention, the measures were repeated with the entire sample. The scoring accuracy for the MMSE-Thai 2002 items and the sum scores on all measures for each participant were double checked by the psychiatrist.

Data Analysis

A significance level of 0.05 was established a priori for all statistical tests. Data were inspected to ensure they met the statistical assumptions for parametric tests. Chi-square analyses and independent Student’s t tests were used to examine the initial group equivalence on baseline characteristics. To control for any baseline differences, a change-score analysis was conducted on all variables by subtracting participants’ posttest scores from their pretreatment scores. Hence, positive number change-scores indicated an improvement in the variable measured, whereas negative number change-scores indicated a decline, with the exception of the MMSE-Thai 2002, where the reverse was true.
DISCUSSION

Regular attendance at group guided imagery sessions over a 16-day period did not improve cognitive functioning or symptoms of depression, anxiety, stress, or pain in Thai older adults in residential care. This finding is disappointing in light of the positive outcomes reported with community-dwelling younger and older adults (e.g., Baird & Sands, 2006; Eller, 1999). However, the overall lack of effect needs to be interpreted cautiously in view of methodological and intervention factors that may have limited the emergence of significant therapeutic effects. These issues are discussed in relation to the three areas of focus: affect, cognition, and pain.

Affective States
The lack of the guided imagery’s effect on residents’ psychological well-being is consistent with Abraham et al.’s (1992) study in which a 24-week guided imagery intervention failed to reduce depression, hopelessness, or life dissatisfaction in a group of nursing home residents. These authors deduced that the nursing home residents may have been too physically and mentally frail to reap the benefits of guided imagery. However, this is unlikely to be the case with the current sample, which was younger and in relatively good psychological health, according to baseline measures of depression, anxiety, and stress. Indeed, baseline measures indicated a general absence of clinically significant symptoms, thereby limiting the potential for significant change-scores to emerge, thus suggesting a ceiling effect. Furthermore, although not statistically significant, the guided imagery group had lower mean baseline scores for depression, pain, and anxiety compared with the control group, further increasing the ceiling effect for the intervention group.

Cognition
In contrast to the current study, Abraham et al. (1992) found that guided imagery enhanced residents’ cognitive abilities. Both studies included samples of older adults with and without significant cognitive impairments, hence, differing levels of cognition in the samples are unlikely to account for the contrary finding. Other three factors may be pertinent, first, the guided imagery interventions in both studies differed in terms of the type of imagery used, the length of intervention, and the mode of delivery (i.e., live versus pre-recorded). Second, Abraham et al. (1992) studied measured cognition with the 3MS (Teng & Chui, 1987). The 3MS contains additional items to the MMSE-Thai 2002 and has graded scores ranging from 0 to 100, allowing greater scope for detecting changes in cognition. Third, Abraham et al. (1992) detected cognitive improvements in their sample 8 weeks after the guided imagery commenced, and these improvements were sustained 4 weeks after the 24-week intervention ended. In contrast, the current study reassessed cognition less than 3 weeks after the intervention, which may have been too soon for changes to occur. With these considerations in mind, it would be premature to refute the potential for guided imagery to enhance cognitive abilities in nursing home residents, and further research is needed to determine whether Abraham et al.’s (1992) positive subjective outcome can be replicated, and under what circumstances. For now it seems that 8 weeks of regular guided imagery practice might be the minimal therapeutic dose for enhancing cognition.

Pain
The lack of therapeutic effects for pain may be due to the nature of the residents’ pain and the delivery format of the guided imagery in this study. Studies reporting positive outcomes with older adults have used guided imagery to manage acute or postoperative pain (e.g., Choujaturro et al., 2009). In these studies, the guided imagery served as an active coping strategy for a circumscribed period of recovery. For example, in Choujaturro et al.’s (2009) study, guided imagery was used with older adults prior to walking exercises following knee surgery. Alternatively, for managing chronic pain, studies have used purposefully designed guided imagery interventions that are self-administered in response to pain. For example, a 12-week guided imagery intervention increased health-related quality of life in 14 older women with osteoarthritis (Baird & Sands, 2006). Pre-recorded guided imagery scripts were personally designed for each woman in accordance with her pleasant imagery preferences and the location of her joint pain. Participants would self-administer guided imagery before potentially painful activities, thus these circumstances, guided imagery is likely to reduce pain in accordance with Gate Theory (Melzack & Wall, 1965) and by the analgesic effects of released endorphins (Bloom, 1981), while giving patients active coping strategies such as distraction and a sense of control over their pain. The current study’s use of a group format with fixed session times may not have been conducive to chronic pain management. Future studies should evaluate the benefits of providing nursing home residents with personal audio equipment and allowing them to flexibly self-administer guided imagery in response to pain or any other adverse states such as anxiety, boredom, or loneliness.

IMPLICATIONS FOR FUTURE RESEARCH

In light of the aforementioned methodological issues and the paucity of existing studies, the effects of guided imagery for older adults in residential care remain inconclusive. A qualitative study is underway that aims to explore residents’ experiences of guided imagery, seeking to illuminate any positive or negative aspects that can be considered in the development of future interventions.

As noted above, there is a dearth of research concerning Thai older adults in residential care. An unexpected and encouraging finding of the current study was the low prevalence of depression, anxiety, and stress in these residents without significant cognitive impairment. This compares very favorably with the prevalence of mental health problems in residents of other countries (McDougal et al., 2007). This apparent disparity in psychological well-being is likely due to a range of sociocultural, environmental, and service-related issues, including the different circumstances that bring older adults into residential care in Thailand and in other countries. Exploration of these issues is beyond the scope of the current article but is nevertheless warranted with the aim of identifying psychological well-being in nursing home residents. Still, generalizations should be deferred until additional prevalence studies involving Thai residents are conducted.

Studies with larger samples are needed, allowing adequate statistical power to examine the effects of different kinds of guided imagery interventions while controlling for covariates such as psychotropic drugs, which the current study was unable to do. Of course, older adults in residential care are a heterogeneous group, and studies might also investigate how personal characteristics of residents interact with guided imagery interventions to influence therapeutic outcomes.

CONCLUSION

This study sought to evaluate the effects of guided imagery with older adults in residential care. A 16-day group intervention including 10 prerecorded scripts with pleasant and specific imagery failed to improve affect, cognition, or chronic pain in a sample of Thai residents. Methodological issues, particularly a ceiling effect ensuing from the sample’s subclinical baseline presentations, may have reduced the intervention’s potential to elicit significant therapeutic outcomes. Accordingly, guided imagery may still hold promise as a valuable intervention for care home residents; however, further investigations of its effectiveness are required. It is hoped that this study stimulates additional research to address this gap in the guided imagery and gerontology evidence base.

REFERENCES


