

# Complementary Care to Reduce Anxiety in Patients with Ventilator Support

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## Introduction

Anxiety is common phenomenon among patients with ventilator support. Since, the sensation of breathlessness, frequent suctioning in ability to talk, uncertainty regarding the illness, isolation from others and fear contribute to high levels of anxiety. Anxiety is able impose harmful effects on the recovery and overall well being of a patient. (Bunt as cited in Chlan & Tracy, 2008; Dileo, Bradt, & Grocke, 2008; McKinley, Parbury, & Chehelabi, 2004). Patient with ventilator support is at particular risk for increasing levels of anxiety, because of critical condition which is regarding patient's life. Anxiety as emotional state involving subjective feeling of tension, apprehension, nervousness, and worry experienced and found to be associated with sympathetic nervous system arousal. The physical manifestation of anxiety involve extreme shifts in body temperature, urinary urgency, dry mouth, dilated pupils, loss of appetite, and diaphoresis (Almerud & Petersson, 2003; Angela, Chung, Chan, & Chan, 2005; Chlan, 1998; Chlan, Engeland, Anthony, & Guttornson, 2007). When the patients undergo anxiety in the treated period, there is

### Abstract

*Complementary therapy refers to the techniques such as such as music therapy, aromatherapy, spiritual therapy, and guided imagery. These techniques are used by nurses for the purpose of enhancing patients healing. The objectives of this review are (a) to review the utilization evidence of complementary and alternative medicine modalities to reduce anxiety in patients with ventilator support; (b) to know what are the common complementary therapies used by nurses to reduce anxiety in patients with ventilator support. The complementary therapy evidence was evaluated in 29 studies of symptomatic adult patients with incurable conditions. Among 29 studies, there were two RCTs studies, two meta-analysis, five quasi experiment/experiment, four repeated measure studies, nine systematic/literature review, two qualitative studies, three descriptive studies and one comparative study. This paper has undertaken a literature review of complementary therapy to reduce anxiety in patients with ventilator support. This review has found that trials of complementary therapy may not readily identify on routine literature searches. Despite the paucity of controlled trial, there are data that support the use of some complementary therapy to reduce anxiety in patients with ventilator support. Among 29 articles that related to this review, music therapy is applicable to reduce anxiety in patients with ventilator support. The other complementary therapies are beneficial, such as aromatherapy, spiritual therapy, and guided imagery, but these are still needed research investigation in patient with ventilator support in the future.*

**Key Words:** *Complementary therapies, anxiety, ventilator support*

diminished ability of the individual patient to cope and delay recovery.

Several strategies have done and many study that associated to reduce patient's anxiety, with ventilator support. Complementary approaches include like music therapy, aromatherapy, and etc., these may provide a quit relaxed environment (Kaplow & Hardin, 2007; Keegan, 2001; Lee, 2000; Long et al., 2001; Lorenzi, 1999). Complementary therapy claims that to relieve anxiety symptoms is more readily available to the individual, either for patients or healthcare. Such treatments may be used in particular population. Although, there are few of its treatment for anxiety in adults with evidence efficacy and only

minimal information is available publicly of such alternative treatment to reduce anxiety in patients with ventilator support. Therefore, this review will summarize the complementary therapies utilization to reduce anxiety in patient with ventilator support.

## Objective of Review

To review the utilization evidence of complementary therapies to reduce anxiety in patients with ventilator support.

To know what the common used complementary therapies by nurses to reduce anxiety in patients with ventilator support.

## Methods of Review

### *Inclusion criteria*

Inclusion criteria in this study are: (a) A study is adult patient in ventilator support; (b) the intervention evaluated was complementary therapy; (c) the outcomes used in the study included anxiety, vital sign and mood. This study also was excluded from the review if the report was not in English. This reason based on the practical reason, increased time, expense and complexity of translating and synthesizing these studies.

### *Search strategy*

Five bibliography databases (MEDLINE, CINAHL, Science Direct, Interscience, and Proquest) were searched from 1999-2008 for original clinical reports or reviews that evaluated the use of complementary therapy to reduce anxiety in patients with ventilator support. The term of complementary therapy and anxiety was used in a comprehensive search of electronic databases. Articles were screened and excluded based on the title and abstract information. If they involved primarily patients with ventilator support that relevant with characteristic of patients with ventilator support, it can be retrieved. When the information is not available or unclear in the title or abstract, the full text was obtained for review.

The used best evidence approach to identify studies for

final inclusion in the paper. This meant that systematic reviews, including meta-analysis, Randomized Controlled Trials (RCTs), and other controlled studies were preferentially considered. If no such trials were found, studies with weaker designs (such as large prospective case series) were review. Study design and sample size of complementary therapy, specific of the complementary therapy (methods, frequency) outcomes assessed, were extracted from each study and tabulated.

## Results of Review

The utilization of complementary therapy was evaluated in 29 studies of symptomatic adult patients with incurable conditions. Of the 29 studies, there were two RCTs, two meta-analysis, five quasi experiment/experiment, four repeated measures, nine systematic/literature review, two qualitative studies, three descriptive studies and one comparative study.

### *Anxiety in Patient with Ventilator Support*

The term of anxiety came from the Greek word *agon* in which is derived the words *anguish* and *agony*. *Agon* was used for recitation painful feelings of terror and dread, in German words (Grimm, 1997; Hooi, 2007). Anxiety is a broad concept within psychological literature and it implies various

definitions and meanings. The other term that include in anxiety, such as fear, phobia, stress are often used in life event and personality characteristics.

Anxiety is as a response to life events, feeling uncertainty, uneasiness, apprehension, or tension that a person experiences in response to an unknown object or situation or danger, and the source of which is largely unrecognized (American Psychiatric Association, 2000). On the other hand, anxiety is defines in state anxiety and trait anxiety (Speilberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). Speilberger, et al defines anxiety is as an unpleasant emotions characteristic by subjective feeling of tension, worry and sensitive autonomic nervous system activation. It is called as state anxiety. The concept of state anxiety was often transitory was often transitory, fluctuation, and can recur when evoked by appropriate stimuli.

Moreover, anxiety is described on an enduring personality (Speilberger, et al, 1983). Trait anxiety is a general tendency to respond with anxiety to perceive threats in the environment. When faced with stressful situation, the person with trait anxiety tends to perceive them as dangerous and threatening and responding to them with an intense elevation of state anxiety. It is endure over time and tends to be relatively stable and predictable. Thus, the stronger the trait anxiety the

more probable the individual will experience more intense and more frequent elevations of the state anxiety in a threatening situation.

Anxiety in patient with ventilator support is classified in terms of state and trait anxiety. It consciously perceived feeling of tension, apprehension, and activation of the autonomic nervous system. State anxiety may vary in intensity and fluctuate over time. Otherwise, trait anxiety refers to relatively stable individual differences in anxiety proneness. It is differences between people in the tendency to perceive stressful situations as dangerous or threatening and to respond such situations with elevations in the intensity of their state anxiety reactions (Speilberger, et al., 1983).

The degree and duration of anxiety in patient with ventilator support demonstrated by each individual varies depend on the meaning of the event and personal characteristic (Moser, et al., 2003; Sungkhaw, 2001). Anxiety in patient with ventilator support is categorized into four levels; mild anxiety, moderate anxiety, severe anxiety and panic anxiety (Frazier, et al., 2003; Moser, et al., 2003; Shives, 2005; Sungkhaw, 2001; Valfre, 2001).

## *Anxiety Management in Patients with Ventilator Support*

### Music

Music has been used since ancient times to arouse well-being. Florence Nightingale recognized the beneficial of music on the sick (Chlan & Tracy, 1999). Music is unique stimulus, because it can encourage both physiological and psychological responses in the listener. Music itself is defined as a complex web of expressively organized sound that contains three essential elements: rhythm, melody, and harmony.

Rhythm is the order in the movement of music. It is the most dynamic aspect and is a key factor in selecting particular pieces of music for exact purposes. For example, body rhythms (respiration, heart rhythm, and gait) are an integral part of human life, and music can play an essential role in harmonizing these rhythms. The melody of music is allied to the sequence of musical pitch and the interval between the musical tones. Pitch is a subjective aspect of sound due to the number of cycles the sound vibrates per second; a faster vibration produces a higher pitch. The melody of a musical piece contributes to the listener's emotional response. It is owing to the way pitches are blended together, with the combination of sounds described as consonant or dissonant by the listeners (Bunt as cited in Chlan & Tracy, 1999).

The harmony of music is as the nonverbal scenery appeals to the right hemisphere of the brain, which involve in intuitive, creative, and imaginative ways of processing in formation and evokes psycho physiological responses. It influence on the limbic system, the center of emotions, feelings and sensations (Guzzetta as cited in Chlan & Tracy, 1999). Music h a r m o n y p r o v i d e s commencement of the brain by releasing the enkephalin and endorphin, in which the body's natural mood, varying substances and pain killing (Thaut as cited in Chlan & Tracy, 1999).

Findings from clinical research suggest that music may facilitate a cutback the stress response, including decreased anxiety levels, decreased blood pressure and heart rate, changes in plasma stress hormone levels (Chlan, 1998; Chlan & Tracy, 1999; Dileo, et al., 2008; Walworth, 2003; Wilkins & Moore, 2004). The use of music listening as an effective, noninvasive intervention designed to assist nurses in creating a healing environment to promote health and well-being. Music has confirmed effectiveness in reducing pain, diminishing anxiety, and escalating relaxation. Some of them use at the relax time. Indeed, music is using for treatment goal in the clinical setting; however, need still more recent development (Chlan & Tracy, 1999; Gagner-Tjellesen, et al., 2001; Mackereth, White,

Cawthorn, & Lynch, 2005; Mok & Wong, 2003; Nilsson, 2008).

An integrative literature review and meta-analyses by Evans (2001) found that the effectiveness of music in anxiety reduction during normal care delivery, but it did not effect in patients undergoing invasive or unpleasant procedures, such as bronchoscopy, sigmoidoscopy, or surgery with spinal anesthetic. This study use Randomized Control Trials (RCTs) in which 29 articles related to the effectiveness of music as an intervention for patients with ventilator support. Another study has done by Nilsson (2008) indicated that music gave positive impact on both physiological and psychological. It is suggested that listening to music become an option modality to all patients during hospitalization.

Why music has virtues for the anxiety reduction? In patients with ventilator support, several studies that concerned in music therapy have been found that music give more effect in anxiety reduction, vital signs (heart rate, systolic blood pressure, diastolic blood pressure and respiratory rate) stabilization, pain reduction, sedation effect, tolerance, satisfaction, mood affection, and length of stay hospitalization. Music is safe and effective intervention for selected in patient with ventilator support, in particular for reducing anxiety via nonpharmacological agents.

According Cooke, Holzhauser, Jones, Davis, & Finucane, (2007) the theoretical basis of music as an intervention for anxiety lies in its ability to basis promote relaxation through its effect on the autonomic nervous system. It is widely accepted that the auditory stimulation of music occupies a number of neurotransmitters thereby diverting feelings of anxiety, fear and pain resulting in a more positive perceptual experience. The character of these stimuli determines the patients' altered feeling states, including the promotion of stress and anxiety reduction.

#### Music process

Music has two branches: active and passive. In active music therapy the utilization of instruments of one's own voice is structured to correspondent to all sensory organs, to obtain suitable motor and emotional responses. For example, when following music, patients with no problem in throat, larynx, or lung, may have an insightful breakthrough as to the psychological meaning of their problems. In the passive branch, listening to specific music is done in order to relax, stimulate, or appease the body and mind (Keegan, 2001). In patient with ventilator support, listening to the music is passively branched because of obstacles in verbal communication and the patient only follows the music.

Finding from bulk of research, some of researcher use

difference of term (music therapy, music intervention, and music relaxation). According American Music Therapy Association (2007), music therapy is the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship. Music therapy is established and credential professional who has completed an approved music therapy program. Music therapy is a reputable health profession in which music is used within a therapeutic relationship to address physical, emotional, cognitive and social needs of individuals. Conversely, music intervention is the arts of music form wherein sound is created with the object of bringing pleasure to the human ear. Music intervention can be done by health profession to give relaxation and distraction for the patients, although the health profession do not have certified from the special program.

White (1999) used a term music relaxation; it is quite similar to music intervention. This term use to give sense of relaxation to the patient to reduce anxiety or stress. White (1999) stated that music relaxation on patients recovering from acute myocardial infarction to give restful environment and buffer a noise; it resulted in anxiety reduction. Despite music therapy, music intervention, and music relaxation are different in term, but from the bulk of research the outcome of music

for patient with ventilator support is to reduce anxiety, pain, and promote relaxation. Thus, the important thing is that it give the therapeutically effect for the patients with ventilator support.

### Aromatherapy

The sense of smell is an area that has long been in recognized in psychotherapy. It is called with aromatherapy. It was the art and science of using pure essential oils for various therapeutic purposes, primarily those related to smell. Approximately, there are 400 essential oils are in use today such as eucalyptus, rosemary, lavender, lemon, chamomile, and etc. Those come from essential oil in which extracted from plant, wood or fruit. The essential oils are the pure essence of a plant. These essential oils have been found to provide both psychological and physical benefits when used correctly (Dunn, Sleep, & Collett, 1995; Keegan, 2001; Kyle, 2006; Mackereth, et al., 2005; Torre, 2003). For example, Lavender, especially *Lavandula angustifolia*, is known to have analgesic, anxiolytic, antidepressive, anesthetic, anticonvulsant, relaxing and sedative effects (Barocelli, et al., 2004) to reduce stress and anxiety (Kutlu, Yilmaz, & Cecen, 2008). Smelling the certain scents or odors during hospitalization can bring in relation to a deeper link of feelings and emotions, and give many effects after smelling it.

Aromatherapy works with the body by activating its own healing energies to balance body, mind and spirit. The use of essential oils can help boost the immune system, reduce stress, promote relaxation, stimulate circulation, promote digestion, reduce nausea after chemotherapy and act as decongestants, anti-inflammatory, and antibacterial (Hatley, 2008; Long, et al., 2001; Lorenzi, 1999). Aromatherapy is thought to work on mood by promoting the release of neurotransmitter, including encephaline, endorphins, serotonin and noreadrenalin. Encephaline and endorphins reduce pain and create a feeling of well being. Serotonin help relax and calm whereas noradrenaline acts as a stimulant (Guyton, 1991; Kyle, 2006). Findings for aromatherapy studies has been shown that it can be use to anxiety/stress reduction, headaches, migraine, asthma, insomnia, musculoskeletal problems and so on (Long, et al., 2001). However, Kite et al as cited in Kyle (2006) state that there is still no evidence that the effects of oils are continued over time.

The aromatherapy interacts with bodies in two ways. The first is that pharmacologically, through chemical changes when oils enter the bloodstream and react with hormones and enzymes. The second is that physiologically, by producing an effect on the body, such as sedation or stimulation;

and when aroma of oils is inhaled or applied give reacted to the smell. Aromatherapy is thought to work on mood by supporting the release of neurotransmitter (i.e. encephaline, endorphins, serotonin and nor-adrenaline). Encephaline and endorphins is useful to reduce pain and create a feeling of well being. Releasing serotonin will help relax and calm whereas noradrenaline acts as a stimulant (Kyle, 2006). However, the study of guided imagery as a strategy to reduce anxiety has not been studied in patient with ventilator support, thus study on aromatherapy effect in patient with ventilator support is desired.

### Guided Imagery

Guided imagery can be implemented by nurses to reduce anxiety in patients. The primary aim of guided imagery is to gently guide the persons to a state where their mind is calm, silent and motionless. It is a simple, low cost, noninvasive tool that has been demonstrated, independence, and control mind when a person is faced with emotional trauma or illness. Despite the guided imagery is useful to reduce anxiety, study about guided imagery in patients with ventilator support not found yet. Some studies were conducted in COPD patients (Carrieri-Kohlman & Janson, 1999), among cancer patients (Kwekkeboom, Wanta, & Bumpus, 2008), relieving pain in many settings (Running, et al., 2008), and outpatients settings (Miller, 2003). There is limited

study about guided imagery in patients with ventilator support, apparently, for the future studies is need research to investigate guided imagery technique to reduce anxiety in patients with ventilator support.

Guided imagery used to influence behavioral changes is a specific style of cognitive restructuring. Anxiety trigger cause releasing hormone that related to its. So, to adjust the trigger, the imagery concept has been adapted to intercept the stimulus and give the body a chance to unwind (Seaward, 2002). Guided imagery works by replacing negative thoughts and perceptions with peaceful scenes. Presently as real or imaginary thoughts can trigger the anxiety response, relaxing thoughts can promote the relaxation response. When imagination is used to promote relaxation, the body five senses are in effect deactivated or desensitized to anxiety stimuli. The body is allowed to recharge so that upon return to physical environment, the patients can deal with their anxiety effectively (Seaward, 2002). The effectiveness of guided imagery as a strategy to reduce anxiety has not been studied in patient with ventilator support, but some evidence indicates that the success of guided imagery depends on the individual's imaging ability.

#### *Spiritual therapy*

The root meaning of spiritual terms in Hebrew, Greek

and Latin, it metaphorically borrowed the concept of moving air, breath and wind. As such, the words are part of our everyday language, to inspire, to lift ones spirits, to dispirit, in good spirits, among others (Foster, 2006). These senses often move to seek out the company of others. Many individuals may be ill and then they cannot enjoy or pray together in the religious places (e.g mosque, church, and temple). Thus, they need a group that support spiritual aspect of their life (Keegan, 2001).

There are three key elements that focus on the relationship between spiritual therapy and anxiety reduction in patients with ventilator support. They are identified-self, others and God. The interconnectedness of these three core elements are as being at the heart of spirituality (Jane, Cobb, & Forman, 1997). The sense of relatedness and connectedness with God make harmony with body system regulation. It can improve the ability to engage in achieving an inner sense of ultimate purpose (Jane, et al., 1997). The patients with ventilator support can utilize these concepts. They will experience a sense of wholeness. They also will be deal with their anxiety in facing hard time treatment with ventilator support.

#### *Massage therapy*

Massage therapy has been in use for over 3.000 years, the earliest references to it being

in China on medicine. It was not only touch but also relieved muscle tension and profound healing. Muscle massage, actually, was apparently practiced in several other ancient cultures such as Persians, Hindus, and Egyptian (Seaward, 2002). It is not only in those culture, even in Asian culture also practice massage to their well being like Thailand is now famous with Thai Massage.

It is widely accepted that massage therapy is one kind of technique in complementary therapy to make patients relax. Massage studied by McKechnie et al as cited in Seaward (2003) found that the connective tissue massage aided in reducing resting hearth rate, skin resistance, and muscle tension. Thus, it was indicating that this mode of relaxation was beneficial in reducing the symptoms associated with anxiety. However, in the recent study there is no study as cited in massage therapy to reduce anxiety in patient with ventilator support.

The application of touch at the site of tense muscle is by activating neural reflex receptor cause a dilatation of blood vessels and increase circulation. When the mind is cleared of thought, stress and anxiety is minimized (Seaward, 2002). Despite the detail that many claims are yet unproven scientifically, it is commonly accepted that the effects of massage therapy to the

musculoskeletal and neuromuscular systems, including increased flexibility and decreased muscle tension, are unrefuted.

## Discussion

In this review, it has undertaken a literature review of complementary therapy to reduce anxiety in patients with ventilator support. This review has found that trials of complementary therapy may not readily identify on routine literature searches. Despite the paucity of controlled trial, there are data that support the use of some complementary therapy to reduce anxiety in patients with ventilator support.

Of note, no studies that used herbal and dietary supplements were found during this literature review, although herbal medicines were included in the search term (under the heading of Alternative medicine). The reason of that may be symptomatically patients may be disinclined to participate in a placebo-controlled RCT or may have impaired ability to comprehend informed consent or to complete outcome assessment, because of severe illness and fluctuating hemodynamic status. Another reason is that the outcomes of concern to patients may be complex to evaluate because of the lack of formal assessment tool and difficulty quantifying this type of information. There may be inconsistency in the duration of endpoints, thus making it

difficult to compare and contrast result.

In terms of complementary therapy to reduce anxiety in patient with ventilator support was found that only music therapy or music intervention that has a lot of number of studies, because it is widely accepted in many researches in several settings. Studies involving complementary therapy may be less likely to be published in refereed, indexed journals. Complementary therapy study result testing herbal or dietary supplements may not be reproducible in clinical practice, as the herbal medicine products need legally guarantee by government regarding the purity or quantity of ingredients.

Many complementary therapies are simple to use and appear have or no side effects. Of the 29 articles that related to this review, only music therapy is applicable to reduce anxiety in patients with ventilator support. It can be beneficial effect to them. The simple of music therapy because it is noninvasive, nonpharmacological and do not need much energy from patient to follow it. In patient with ventilator support, it is widely applied, because of the passiveness listening to the music and not need much concentration to do it.

Moreover, there are four complimentary therapies that can be also used for patient with ventilator support on anxiety

reduction. They are guided imagery, spiritual therapy, meditation, and aromatherapy. However, it was not found in population of patients with ventilator support, although, the utilization of them is widely accepted in the result of study. Thus, we need upcoming research in particular patient with ventilator support to reduce anxiety.

There are number of strength to this review. Firstly, it is comprehensive, including five databases encompassing the nursing and allied health, medical, and social health literature. This review represents the first systematic review of complimentary therapy used to reduce anxiety in patients with ventilator support. Secondly, this paper examines highly prevalent symptoms in patients with ventilator support which are clinically, relevant, common and morbid. Thirdly, this paper is using the best evidence approach. Data initially is sought from the meta-analysis and randomized control trials. Small case report such as pilot study is also reviewed to support some of data.

Several limitations to this study should be noted. The search of terminology over time was constrained by indexing limitation. The difficulty finding literature consists in patient with ventilator support was limited by the content to reduce anxiety of the databases and not indexed in them. It has found that trials of

complementary therapy to reduce anxiety in patients with ventilator support may be not easily found on routine literature searches. Another limitation of this review was the exclusion of non-English language studies. This decision was made for practical reason based on the increased time, expense, complexity of translating, and synthesizing these studies.

Despite these limitations, this review suggests that there is evidence to support the use of complementary therapy to reduce anxiety in patients with ventilator support. Music therapy is one kind of complimentary therapy that used to reduce anxiety in patients with ventilator support. The other complementary therapies are also benefit, such as aromatherapy, spiritual therapy, and guided imagery, nevertheless those are still need research inquiry in patient with ventilator support in the future.

## Conclusion

Complementary therapy refers to the techniques such as music therapy, aromatherapy, guided imagery, spiritual therapy, and massage therapy. The uses of complimentary therapy were utilized instead of treatment recommended. There are five complementary therapies in this review regarding patient anxiety management: music therapy, aromatherapy, guided imagery, spiritual therapy, and massage therapy. Based on the literature review the kind of complementary therapy being used to reduce anxiety in patients with ventilator support was music therapy.

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