

## Conference Paper

# The Effect of Quran Recitation to Pain and Comfort Feeling on Patients with Reduced Consciousness in UNS Hospital

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## Abstract

Patients with reduced consciousness still have the ability to feel the surrounding condition. It becomes the basis of therapeutic communication development, which one of the components is identifying the pain scale which is inversely proportional to comfort. The Quran recitation brings relaxation for its listeners so that it is an appropriate modality to provide comfort. This study aimed to analyze the influence of Quran recitation to patients with reduced consciousness on pain scale and comfort. There were 12 patients with reduced consciousness aged over 18 years without a history of deafness. The consciousness was assessed by Glasgow Coma Scale with a score of 4 to 14. The patients were divided into two groups equally: (1) intervention group (T) with the Quran recitation given 3 times a day for 3 days and (2) control group without intervention (C). Pain scale was quantified using a visual analogue scale, faces pain rating scale, and comfort scale before and after treatment and done by three observers. Meanwhile, blood cortisol test was conducted after treatment. Document and content analysis was conducted on the interview results of patient and family satisfaction by three coders. T group showed similarities on easiness to get asleep, feeling of not lonely, and memory of powerful life. Meanwhile, C group showed similarities on the annoying sound outside and difficulty to get asleep. Measurement of pain scale in T group by using a visual analog scale ( $p=0.263$ ), faces pain rating scale ( $p=0.568$ ) and comfort scale ( $p=0.35$ ) did not show a significant difference between pre and post-test. Cortisol level showed higher trend in T group compared to C group although not significantly different ( $p=0.286$ ). The Quran recitation in patients with reduced consciousness brings comfort was explained by the interview results as their consciousness gradually improves.

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## 1. Introduction

Pain is an unpleasant perception experienced by a person due to trauma, both physical and psychological trauma. Pain may have a positive impact because it gives early warning of things that endanger the body. Nevertheless, pain induces a negative impact due to stress to the body. Patients with organs' malfunction need treatment in intensive care rooms [1], including patients with reduced consciousness. Reduced consciousness

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occurs due to various causes which result in disruption of consciousness/alertness in the central nervous system. However, during treatment, patients with reduced consciousness still can feel pain, discomfort, and anxiety which cause stressed conditions [2]. This condition is hardly ever considered in the care of patients with reduced consciousness.

In patient-centered care era, hospitals should be able to provide excellent service. Humans as complex creatures need to be served not only by professional medical staffs and complete infrastructures, but also managed holistically by considering physical, psychological and social factors [3].

In the reduced consciousness condition, the patients' auditory sensory function is still intact with the surrounding environment [4]. It becomes the basis for conducting various studies on therapeutic communication in patients with reduced consciousness, through identification of pain intensity [5]. The pain scale is inversely proportional to comfort feeling [6]. The development of the psycho-neuro-endocrine-immunological theory encourages the emergence of patient care procedures which consider non-pharmacological therapeutic factors in the process of recovery [4].

Al Quran recitation is proven to provide relaxation [7, 8]. Al Quran recitation provides peace and grace, even for those who listen to it (Hadith). This study aimed to analyze the effect of Quran recitation on the comfort feeling of patients with reduced consciousness through assessment of pain scale with various protocols and cortisol hormone testing which plays a role in preventing pain.

## 2. Method

The participants of this study were 12 patients with reduced consciousness assessed by the Glasgow Coma Scale with a score of 4-14 aged more than 18 years old without a history of conduction deafness or sensorineural deafness. The patients were divided into two groups. The first group was the intervention group (T) with Quran recitation given 3 times a day, at 7:00 a.m., 3:00 p.m., and 10 p.m. for 3 days. The duration of one session intervention was 35 minutes. The second group was the control group/without intervention (C).

This study was conducted with pre- and post-test group design for pain scale measurement using Visual Analogue Scale, Faces Pain Rating Scale, and Comfort Scale. Meanwhile, post-test group design was performed for blood cortisol level testing. Five mL of venous blood was taken from the arm vein (cubital vein) as a *legeartic* procedure. The collection process is carried out uniformly at 4:00 p.m. - 6:00 p.m. Furthermore,

document and content analysis method with three coders was conducted to the results of interview on patients and family satisfaction during treatment.

This research was conducted in a high care unit and patient ward of UNS Hospital. Assessment of pain scale was recorded and carried out by three observers whose results were then averaged. The procedure of this research has been approved by the Ethics Commission of Medical Faculty of Universitas Sebelas Maret. At last, this study also used an interview method to patients and families. From all 12 patients studied, there were only 9 patients eligible for interview. Most of the patients with reduced consciousness were suffered from critical illnesses. Finally, 2 patients were passed away, and 1 patient still could not be interviewed because of too low awareness.

### 3. Results

The results of pain scale calculation using the visual analogue scale to the 12 patients had the trend to be different between pre- and post-test, both in C group and T group. Based on the mean result, the patients' pain scale measured after intervention (post-test) had the trend to be lower than before intervention (pre-test). However, there was no significant difference statistically, with  $p = 0.071$  in C group and  $p = 0.658$  in T group.

The results of pain scale calculation using faces pain rating scale as well as using comfort scale to the 12 patients had the trend to be different between pre and post test, both in C group and T group. Based on mean results, the patients' pain and comfort scale measured after intervention (post-test) had the trend to be lower than before intervention (pre-test). Statistically, there was a significant difference between pre and post-test in C group with the value of  $p = 0.026$  for faces pain rating scale and  $p = 0.040$  for comfort scale. Whereas in T group there was no significant difference between pre- and post-test with  $p = 0.768$  for faces pain rating scale and  $p = 0.266$  for comfort scale.

Cortisol is a hormone responsible for stressed conditions so that humans are able to maintain a state of homeostasis. Dealing with pain, cortisol is a hormone that inhibits pain. A patient with reduced consciousness loses self-control so that the detected cortisol level is purely due to the patient's response to pain. Cortisol hormone test results in T group showed higher trend compared to C group as shown in the Table 1.

Based on the interview results, there were several points which can be grouped into 4 things, namely feeling expressions, mood expressions, retrospective memory appearances, and physical complaints. T group showed similarities in terms of easiness to get asleep, not lonely feeling, and powerful memory in the past. Whereas, C group

TABLE 1: Average measurement results of pain and comfort scale, blood cortisol level.

	C group		T group	
	Visual analogue scale	Pre-test	3,78	Pre-test
	Post-test	2,75	Post-test	3,388
Faces pain rating scale	Pre-test	2,055	Pre-test	2,25
	Post-test	1,527	Post-test	2,083
Comfort scale	Pre-test	18	Pre-test	16,945
	Post-test	15,833	Post-test	16,527
Cortisol level	Post-test	10,958±9,93 <sup>a</sup>	Post test	15,9±5,22 <sup>a</sup>

<sup>a</sup>p = 0.286, T group vs C group for cortisol level

showed similarities in terms of annoying noise outside the room and the difficulty to get asleep. While headache complaints were experienced by both T and C groups.

*"I didn't feel severe pain. My chest was not out of breath. I felt able to sleep well while being treated. Sometimes, I feel there were 2 persons in the right and left who accompanied me to sleep. I often dreamed about wartime, I was very proud in defending my homeland."*(Patient q2, 72 y.o)

*"I don't have an appetite, often have bad dreams. I'm not comfortable because it's not like home. My head is also often sick, I feel lonely. I dream but I don't remember it."*(Patient k5, 58 y.o)

## 4. Discussion

### 4.1. The role of cortisol to prevent pain

Patients with reduced consciousness have a higher degree of pain than people with full consciousness [9]. The degree of pain is strongly correlated to cortisol levels. It is often used as a relevant biomarker of pain in patients with reduced consciousness [10]. Activation of the pituitary-adrenal axis occurs during the response to pain which enables the body to survive in pain conditions [11]. Stimulation of the hypothalamic paraventricular nucleus by pain stimulates corticotrophin-releasing factor (CRF) secretion. Then, CRF stimulates the pituitary to secrete adrenocorticotropin (ACTH), 8-lipotropin, and 3-endorphins. Levels of these hormones in plasma can increase up to 2 to 5 times during the stress period due to pain [2].

The data showed that the patients with treatment (T) had higher average cortisol level than the control group. This shows that the effect of Quran recitation is linear with the decrease of pain response in patients with reduced consciousness. Cortisol is a pain

inhibitor and anti-inflammatory hormone [12]. The increase of cortisol level is an adaptive response to stressors [13] in order to prepare the body to maintain homeostasis [14]. Increased cortisol hormone also affects multiple organ systems of the body to divert energy sources to respond to pain [12]. However, the increase of cortisol level in T group was not followed by the significance of difference with C group in the statistical test. Therefore, more research patients are needed to provide wider data distribution curve.

#### 4.2. The influence of Quran recitation to reduce pain

Listening to Quran recitation helps to reduce depression and stress. Al-Quran recitation has a positive effect on stress and anxiety in patients treated in intensive care [15]. Based on the research data, the results showed that the post-test mean of pain scale reduced in both the C and T groups. To increase the objectivity of the assessment, comfort scale calculations were carried out by considering physical factors such as blood pressure and heart rate as part of the assessment component. The validity of the pain scale testing is getting better because the pain scale assessment is accompanied by recording and testing by 3 people with a medical background. Each test result was then averaged to become research data.

The selection of the Quran as a treatment modality needed to consider several things, including the type of *muottal* and the Quran letter. The selection of *muottal* type was determined based on the rhythm and tempo. Regular rhythms at low speeds were chosen based on research with musical modalities [16]. The study stated that the rhythm and tempo of music affected the changes of alpha and beta waves based on observations on the electroencephalogram. Quran letter was determined by the implicit meaning. The choice of Ar-Rahman letter was based on the content of meaning which means compassion. It contained some greatness of God who had given love throughout the ages, even when human was sick. There were always God's favors to be thankfully stated. The weakness of this study was the lack of data to identify whether patients understood the meaning of the Quran contents. This research was also a lack of data whether the experience of hearing the same Quran letter influenced the impact of Quran to patients.

Pain experienced by all patients with decreased consciousness. Pain induced stress. The Quran recitation made patients more tolerant to pain as well as the increase in cortisol levels as the preventing pain hormone.

As someone gets older, the body loses its ability to provide appropriate responses to pain levels or expression of stress [17]. This causes the testing of pain level between

pre-test and post-test using various tools in the research subject did not show significant differences in both C and T group. Pain that affects stress conditions is also related to immune status [18], both due to physical and psychological injuries [19]. At the beginning of the increase of cortisol level, comfort feeling due to obstruction of pain will have a positive impact on patients' comfort. However, if this condition occurs is chronic (more than 4 weeks), it will cause an immune compromised condition. Nevertheless, the performed medical treatment will further improve the physical condition so that it is linear with less pain.

The development of the psycho-neuro-endocrine-immunology branch provides an understanding that the recovery of patients from their disease is not only viewed from one physical dimension, but also from the psychological dimension. Psycho-neuro-endocrine-immunology is the study of interactions between psychics, nerves, hormones, and immune responses [4]. The minimum degree of pain causes a correlative feeling of comfort with a healthy psychic condition. Psychic conditions affect the performance of the nervous system in the form of activation or nonactivation of the sympathetic and parasympathetic systems [20]. In addition, the psychological condition has the potential to change the order of body hormones which ultimately affects the patient's immune status [21]. In view of the concept of health in a holistic manner, healing is a combination of physical, psychological, and social elements.

## 5. Conclusion

The results of this study are able to provide recommendations that there is potential for Quran reading interventions in providing comfort to subjects with reduced consciousness. Pain experienced by all patients with decreased consciousness. Pain induced stress. The Quran recitation made patients more tolerant to pain as well as the increase in cortisol levels as the preventing pain hormone. More samples are needed with additional objective research tools to prove that the subject pain scale actually decreases. It would be better if the next researcher was able to determine pain scale changes due to the recitation of the Quran and not due to the dominance of therapy.

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