

Examination of the Nursing Theses on Practices of Complementary and Supportive Medicine for Individuals Undergoing Hemodialysis in Turkey: A Literature Review

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Abstract Aim: The aim of this study was to examine the nursing theses on practices of complementary and supportive medicine for individuals undergoing hemodialysis (HD) in Turkey and light the way for nursing practices and other related future studies. **Background:** Practices of complementary and supportive medicine have also been involved in the treatment especially abroad and recently in Turkey for the purpose of controlling the symptoms of individuals undergoing hemodialysis, increasing their life quality and adherence to therapy, and minimizing the negative effects of the disease and the treatment. **Design:** Literature review. **Methods:** In the study, the data were collected by primarily reviewing the literature and then searching Database of the Higher Education Council National Thesis Center with keywords of “hemodialysis”, “complementary”, “alternative treatments”, “acupress”, “aromatherapy”, “massage”, and “reflexology”. At the end of the search, 11 theses written in Institute of Health Sciences Department of Nursing between 2009 and 2015 were determined and the identity information of these theses was reached. **Results:** According to the study results, it was found that practices of complementary and supportive medicine were effective upon individuals undergoing hemodialysis (the blood pressure regulation, decreased the symptoms of fatigue, pain, cramp and pruritus, as well as the stress and anxiety levels, and increased the sleep quality). **Conclusion:** It was determined that different complementary and supportive medicine practices used in the theses provided the blood pressure regulation, decreased the symptoms of fatigue, pain, cramp and pruritus, as well as the stress and anxiety levels, and increased the sleep quality in individuals undergoing hemodialysis.

Keywords: *complementary and supportive methods, hemodialysis, nursing*

Cite This Article: Sevil BICER, and Gülsüm Nihal ÇÜRÜK, “Examination of the Nursing Theses on Practices of Complementary and Supportive Medicine for Individuals Undergoing Hemodialysis in Turkey: A Literature Review.” *World Journal of Preventive Medicine*, vol. 4, no. 2 (2016): 40-46. doi: 10.12691/jpm-4-2-3.

1. Introduction

In Turkey, the number of patients with End Stage Renal Failure (ESRF) is more than 60.000. Treatment options of End Stage Renal Failure involve hemodialysis (HD), peritoneal dialysis and transplantation. In Turkey, the commonly used method for ESRF is hemodialysis (at the rate of 79.28% according to the data of 2012) as in other countries [50]. Hemodialysis is a method of treatment that requires devices and a qualified labor force, is continuous, has a high cost, and is life-saving for patients [3,29,34]. Despite the developments in the hemodialysis method, patients still encounter with many physical, mental, and social problems. Symptoms like fatigue, cramps, pain, sleep disorder, dyspnea, pruritus, depression, anxiety, nausea, vomiting and constipation, which are among the aforementioned problems, have a negative effect on all

aspects of daily life and quality of life among individuals [4,29,34].

The control of symptoms caused by hemodialysis requires a multidisciplinary approach. Especially nurses have important functions in decreasing and eliminating the severity of symptoms. Roles and responsibilities of nurses have changed in parallel with technological advancements and the increase of scientific knowledge in the field of health [60]. Accordingly, nurses are expected to develop nursing practices regarding the use of integrative medicine practices and determine efficient strategies [36,60]. Nursing practices and practices of complementary and supportive medicine have a common fundamental philosophy. Similar aspects of both practices are that they approach individuals from a holistic perspective, play a supportive role during treatment and focus on promoting the health and enabling patients to have an active role [36,60]. Complementary and supportive medicine practices that are used by nurses are divided into three

groups. The first group involves treatments that could be directly included in practices by nurses; massage, shiatsu, reflexology, acupress, aromatherapy and therapeutic touch. The second group involves therapies that could partially be included in nursing practices; homeopathy, herbal therapies, nutrition therapies, and hypnotherapy [19,36,57,60]. The third group involves therapies that could not easily be included in nursing practices but could contain the advices of nurses; acupuncture, chiropractic, and osteopathy. In this regard, complementary and supportive medicine practices are thought to be in the scope of independent nursing roles of professional nurses who have theoretical knowledge and the skill of scientific problem-solving [19,36,57,60].

Practices of complementary and supportive medicine have also been involved in the treatment especially abroad and recently in Turkey for the purpose of controlling the symptoms of individuals undergoing hemodialysis, increasing their life quality and adherence to therapy, and minimizing the negative effects of the disease and the treatment [1,26,28,58,59]. Numerous studies that have been conducted abroad and in Turkey have revealed that complementary and supportive medicine practices applied by nurses such as massage, acupress, aromatherapy, reflexology, and music therapy provide the blood pressure regulation, decrease the symptoms of fatigue, pain, cramp and pruritus, as well as the stress and anxiety levels, and enhance the sleep quality [2,5,10,15,17,18,21,25,30,31,33,38,45,46,48,52,53,55,63]. Nurses who receive postgraduate education are expected to conduct scientific studies on practices of complementary and supportive medicine, investigate the benefits and possible side effects of these methods, and inform the society about these issues. The analysis of related scientific theses could reveal the overall picture concerning depth, extensity, efficiency, and applicability of complementary and supportive treatment methods aimed at individuals undergoing hemodialysis.

The aim of this study was to examine the nursing theses on practices of complementary and supportive medicine

for individuals undergoing hemodialysis in Turkey and light the way for nursing practices and other related future studies.

2. Design

2.1. Search Methods

In the study, the data were collected by primarily reviewing the literature and then searching Database of the Higher Education Council National Thesis Center with keywords of “hemodialysis”, “complementary”, “alternative treatments”, “acupress”, “aromatherapy”, “massage”, and “reflexology”. The experimental studies written in Turkish were included in the study. At the end of the search, 11 theses written in Institute of Health Sciences Department of Nursing between 2009 and 2015 were determined and the identity information of these theses was reached.

Table 1. Distribution of the theses according to their types

Types of Thesis	n	Percent %
Master's thesis	4	36.3
Doctorate Thesis	7	63.7
Total	11	100

Table 2. Distribution of the theses according to years

Years	Number of thesis	Percent (%)
2009	1	9.1
2011	4	36.3
2012	2	18.2
2013	1	9.1
2014	1	9.1
2015	2	18.2
Total	11	100

Table 3. Distribution of problems experienced by patients undergoing hemodialysis and the tat methods aimed at removing these problems in the theses

Complementary and supportive methods	Experienced of the symptoms	Conclusion
Massage	Fatigue Sleep quality	Effective
Aromatherapy	Sleep quality Fatigue Pruritus Anxiety	Effective
Reflexology	Fatigue Pain Cramp	Effective
Acupress	Pruritus Fatigue Hypotension Pain	Effective
Music	Sleep quality Vital sings Stress Anxiety	Effective

2.2. Study Selection

It was determined that four of the theses were postgraduate and seven were doctoral (Table 1), and majority of them (10 theses) were conducted within the last five years (Table 2). The most frequently used complementary and supportive medicine practices in the theses were determined respectively as; acupress (3 theses), aromatherapy (3 theses), music (2 theses), massage (2 theses), and reflexology (1 thesis) (Table 3). In all the theses, the data were collected by forming intervention and control groups.

Among the theses examined, the nurses who conducted postgraduate studies evaluated the efficiency of different complementary and supportive practices on different symptoms of individuals undergoing hemodialysis [2,5,10,15,21,25,33,45,48,55,63].

2.3. Hemodialysis & Aromatherapy

It was determined that aromatherapy aimed at individuals undergoing hemodialysis increased the sleep

quality [45], decreased the level and severity of fatigue [5,45], decreased the day time somnolence and anxiety level [5] and provided positive changes in some laboratory parameters concerning pruritus [21], (Table 4).

2.4. Hemodialysis & Acupress

It was found that acupress provided the blood pressure regulation [10] and decreased the severity of pain [25], fatigue [10,25], and pruritus [2], (Table 4).

2.5. Hemodialysis & Massage

It was determined that massage decreased the level of fatigue [55], increased the sleep quality, and decreased the insomnia symptoms [63] (Table 4).

2.6. Hemodialysis & Reflexology

It was found that reflexology was effective in decreasing the symptoms such as fatigue, pain, and cramp [48], (Table 4).

Table 4. Summary of nursing theses on complementary and supportive methods aimed at patients undergoing hemodialysis

Types of Thesis Author Publication Year	The name of the thesis	Used of complementary and supportive methods	Aim	Method/Used of scales	Conclusion
Doctorate Thesis Muz G. 2015	The effect of aromatherapy applied by inhalation on sleep quality and fatigue level in hemodialysis patients.	Aromatherapy	Aimed to determine the effect of aromatherapy applied by inhalation on sleep quality and fatigue level in hemodialysis patients.	*Randomized-controlled study *CG: 35, IG: 27 Sample: 62 patients * (F: % 33.3, M: % 66.7) * The data were gathered using VAS, Piper Fatigue Scale, PUKİ.	It was determined that aromatherapy applied by inhalation improved sleep quality, decreased fatigue level and severity in hemodialysis patients.
Master's thesis Şentürk A. 2015	The effect of lavender oil method with inhalation pathway on hemodialysis patients anxiety level and sleep quality	Aromatherapy	Aimed to analyze the effect of lavender oil method with inhalation pathway on hemodialysis patients' anxiety level and sleep quality.	*Experimental study *CG: 17, IG: 17 Sample: 34 patients * (F: % 23.5, M: % 76.5) * The data were gathered using VAS, PUKİ and Hamilton Anxiety Rating Scale.	It is suggested that the use of lavender oil inhalation application can be used to decrease the anxiety level and to increase their sleep quality of hemodialysis patients.
Doctorate Thesis Cürçani M. 2012	The effect of aromatherapy on hemodialysis patients' pruritus	Aromatherapy	Determine the effect of aromatherapy on pruritus observed in hemodialysis patients.	* Randomized-controlled study * CG: 40, IG: 40 Sample: 80 patients * (F: % 52.5, M: % 47.5) * The data were gathered using VAS pruritus scale.	Aromatherapy was found to decrease the pruritus problem of hemodialysis patients and led to positive changes in some laboratory parameters related to pruritus.
Doctorate Thesis Biçer S. 2014	The effect of acupressure performed for the individuals who developed hypotension during hemodialysis upon blood pressure and fatigue level	Acupress	Determine the effect of acupress performed for 12 sessions using electrostimulation device for those who developed hypotension during hemodialysis upon blood pressure, severity of headache and fatigue level.	*Randomized-controlled study *CG: 68, IG: 67 Sample: 135 patients * (F: % 60.0, M: % 40.0) * The data were gathered using VAS pain, VAS fatigue and Piper fatigue scale.	It was detected that acupressure performed on Neiguan (P6) acupuncture point using electrostimulation device provided systolic and diastolic blood pressure regulation and decreased VAS pain severity, VAS fatigue severity and mean scores of subscales of Piper Fatigue Scale and total scores.
Doctorate Thesis Akça NK. 2011	The effect of acupress on pruritus status of patients having hemodialysis	Acupress	The efficacy of acupress was investigated on pruritus status of patients having hemodialysis	* Randomized-controlled study *CG: 40, IG: 38 Sample: 78 patients * (F: % 52.5, M: % 47.5) * The data were gathered using VAS pruritus scale.	It was observed that the pruritus level was decreased in the acupress applied hemodialysis patients.

Types of Thesis Author Publication Year	The name of the thesis	Used of complementary and supportive methods	Aim	Method/Used of scales	Conclusion
Doctorate Thesis Eglence R. 2011	The effect of acupressure used for the hemodialysis patients on fatigue levels	Acupress	In order to find out the effect of acupressure applied to haemodialysis patients by acupuncture pen on fatigue level	* Randomized-controlled study *CG: 66, IG: 52 Sample: 118 patients. * (F: %48.3, M:% 51.7) * The data were gathered using VAS fatigue and Piper fatigue scale.	It was concluded that acupressure made using acupuncture pen was effective in reducing fatigue levels.
Master's thesis Soyman Z. 2009	Effect of massage of fatigue in hemodialysis patients	Massage	This research has been made on the hemodialysis patients to review the effects of the massage on the tiredness.	* Experimental study * CG: 30, IG:30 Sample: 60 patients * (F: %48.3, M:% 52.7) * The data were gathered using Piper fatigue scale.	According to data, the tiredness points of the patients have been increased in the control group after the dialyses, the tiredness points in the experiment group after dialyses has been decreased.
Master's thesis Yavuz P. 2013	The effect of the massage to the sleeping quality of hemodialysis patients	Massage	The research performed in hemodialysis patients in order to determine the efficacy of classical massage in the management of insomnia symptoms	* Experimental study *CG: 30, IG:30 Sample: 60 patients * (F: %46.7, M:% 53.3) * The data were gathered using PUKİ.	According to the results the massage may be recommended in patients for reducing insomnia symptoms with pharmacologic agents as a complementary implementation method
Master's thesis Özdemir G. 2011	The effect of reflexology applied on hemodialysis patients with fatigue, pain and cramp	Reflexology	The research aimed to confirm the efficiency of reflexology in hemodialysis patients of fatigue, cramp and pain symptoms.	* Randomized-controlled study *CG: 40, IG: 40 Sample: 60 patients. * (F: %62.5, M:% 37.5) * The data were gathered using VAS fatigue and Piper fatigue scale.	According to research result, reflexology is one of the supplementary methods to reduce the symptoms like fatigue, pain and cramp.
Doctorate Thesis Cantekin I. 2012	The effects of music therapy on stressors perceived by hemodialysis patients and their anxiety levels	Music	Determine the effects of music therapy on stressors perceived by hemodialysis patients and their anxiety levels.	*Experimental study * CG: 50, IG:50 Sample: 100 patients *(F: %46.0, M:% 54.0) * The data were gathered using hemodialysis stressor scale, state and trait anxiety scale.	Music therapy was determined to reduce stressors perceived by hemodialysis patients and anxiety levels.
Doctorate Thesis Karadağ E. 2011	The effect of music on the quality of sleep and vital signs of the chronic renal failure patients who are getting hemodialysis treatment	Music	determine the quality of sleep of the patients with chronic renal failure who are getting hemodialysis treatment, and to evaluate the effect of music, which they were listened to before they go to sleep, on their quality of sleep and vital sings.	* Experimental study * CG: 35, IG:35 Sample: 100 patients * (F: %42.9, M:% 57.1) * The data were gathered using PUKİ.	musical treatment is an effective nursing initiative which decreases life findings and increases the quality of sleep in the hemodialysis patients.

2.7. Hemodialysis & Music

It was determined that music therapy was an efficient nursing intervention in decreasing the anxiety level [15] and increasing the sleep quality [33], (Table 4).

3. Discussion

Nonadherence to treatment is commonly observed in patients undergoing hemodialysis due to the symptoms caused by hemodialysis. In the literature it is reported that more than half of patients undergoing HD have nonadherence to treatment [3,6,8,22]. The adherence of HD patients to treatment is important in terms of enhancing the medical condition and life quality of these patients [19,36,57,60]. Just like in all chronic diseases, practices of complementary and supportive medicine

could be used for increasing the life quality and adherence to treatment among ESRF patients and minimizing the negative effects of disease and treatment [23]. National Institute for Health and Clinical Excellence –NIC suggests the use of complementary and supportive medicine practices as a part of the patients' treatment [47].

Aromatherapy is one of the complementary and supportive medicine practices and nurses are the most convenient professional group for involving aromatherapy within the health care [12]. However; when the literature is examined, it is observed that aromatherapy practices are not sufficiently involved in the nursing training and care. In the literature review conducted by Maddocks-Jennings to determine the aromatherapy practices in nursing; they reported that aromatherapy was not commonly used in nursing, majority of nurses were not adequately informed about aromatherapy throughout the education, but they

had sufficient potential and desire to study on this issue [42]. On the other hand, the fact that there are numerous thesis studies and reviews on aromatherapy applications in nursing postgraduate education in Turkey shows that there is a gradually increasing interest in aromatherapy. Despite these developments, it is observed that the studies conducted regarding the use and integration of aromatherapy with nursing care practices in the world and in Turkey have remained at the level of empirical evidence [42]. As a result of the theses examined, it was determined that aromatherapy was effective in managing the symptoms of individuals undergoing hemodialysis such as sleep problems, fatigue, anxiety, and pruritus [5,21,45]. Various substances in essential oils used in aromatherapy are involved in the blood circulation via inhalation or topical ways and show psychological, physical, and cellular effects. According to the results of various studies conducted concerning the use of aromatherapy in patients undergoing hemodialysis; it was found that inhalation of the lavender oil applied for 15-20 minutes twice a day for 4 weeks decreased the anxiety [32], the BUN levels decreased in a statistically significant way among the aromatherapy-applied patients undergoing hemodialysis, the aromatherapy was a beneficial and effective method in management of pruritus encountered on patients undergoing hemodialysis [51], the hiba oil decreased the anxiety and depression levels of patients with HD [31], and lavender aromatherapy may be an effective technique to reduce pain following needle insertion into a fistula in hemodialysis patients [7].

In the thesis studies examined, it was determined that acupress decreased the severity of fatigue and pruritus and provided the blood pressure regulation among individuals undergoing hemodialysis [2,10,25]. Acupress is a practice involved in the Nursing Intervention Classification (NIC) and is defined as applying pressure on special points of body for decreasing or preventing the nausea, providing relaxation, decreasing the pain, and removing the fatigue [19,57]. The signals that occur as a result of the stimulation of acupuncture points with acupress are firstly conveyed to medulla spinalis and then to brain stem, thalamus and sensory cortex and they activate the pain control system by stimulating the neurons in the periaqueductal gray matter and the periventricular area in the mesencephalon. Endogenous opioids like enkephaline and beta endorphin, and neurotransmitters like serotonin and noradrenaline which are known to have a role in this system are released. Endorphin, enkephaline and serotonin are among endogenous chemical substances that decrease fatigue and pain perception. Acupress is a treatment method that increases the independent functions of nurses and improves the patient-nurse interaction. It is important for nurses to obtain information about the acupress and its application technique in order to use these safe, non-invasive and efficient treatment methods in their practices [9,56]. In the literature, there are studies indicating that the acupressure applied on individuals during HD provided the regulation of blood pressure and pulse, had positive effects on biochemical variables, decreased pain and fatigue levels, relieved the uremic pruritus and enhanced the qualities of life and sleep [27,37,41,58,59].

In the theses on the efficiency of massage, it was indicated that massage decreased the fatigue level, increased

the sleep quality, and decreases the insomnia symptoms [55,63]. Massage regulates the blood circulation, relaxes the excessively stiff muscles, stimulates the vascular, neural and hormonal structures, accelerates cellular activities, enables the faster discharge of metabolic wastes from the tissues, creates a sedative and restful effect, and removes the fatigue. As massage is an easily applicable, cost-effective and efficient method that does not take much time and require any equipment-tool for nurses; it is considerably preferred among complementary and supportive medicine practices today. The massage to be applied to patients undergoing hemodialysis could remove or decrease their fatigue and increase their sleep quality. Thus, there could be an increase in the life quality of patients. In the randomized controlled studies conducted on patients undergoing hemodialysis, results reported that massage increased the sleep quality and decreased psychological stress, anxiety, and leg cramps [43,44].

It is found that reflexology, which is applied to the points of hypophysis, thyroid, parathyroid, pancreas, adrenal gland, solar plexus in the foot area via special manual rubbing motions, is effective in decreasing the symptoms of individuals undergoing hemodialysis like fatigue, pain, and cramp [48]. It is argued that in the reflexology, the stimulation of nerve spots via certain techniques causes a number of electrochemical messages, which stimulate the relevant organs with the help of neurons, decrease the tension and stress regarding physical problems, and relax them. This relaxation affects the autonomous response, which respectively affects the endocrine, immune and neuropeptide system. As massage also accompanies this practice, skin contact causes the releasing of endorphin and other cerebral secretions, which decreases fatigue and pain and increases the well-being. Among the theses examined, there was only one study indicating the effect of reflexology upon controlling the symptoms of patients undergoing hemodialysis such as fatigue, pain, and cramp. It could be asserted that there is a need for new related studies in order to use the reflexology as a safe method in individuals undergoing hemodialysis. In the study of Unal et al., it was revealed that while the reflexology enhanced the sleep quality of patients undergoing hemodialysis, it decreased the fatigue levels [61]. In their study, Shahgholian et al., reported that the reflexology applied on patients undergoing hemodialysis was effective in decreasing the level of the restless leg syndrome [54].

Being among complementary and supportive medicine practices; music therapy is also among independent nursing interventions that help meeting the physical, emotional, and psychological needs of patients. Music is known to decrease the activity of neuroendocrine system and sympathetic nervous system due to its effect on the hypothalamic system and the limbic system. A decreased neuroendocrine activity decreases the release of corticotropin (adrenocorticotropin, ACTH) and the response to stress. A decreased sympathetic activity decreases the blood pressure, heart rate, and breath rate and provides relaxation [20]. The theses evaluating the effects of music upon the physiological and psychosocial symptoms of patients undergoing HD reported that music was an efficient nursing intervention that decreased the stressors being perceived by patients, as well as anxiety

levels [15] and vital signs, and increased the sleep quality [3]. Being a non-invasive relaxation technique; music application is accepted as a treatment method with an esthetical approach that enables patients to involve in their care in accordance with their own opinions [35]. In studies regarding music, the researchers have stated that music is closely related with health care functions, could be used in every area of health, and is a pain-free, safe, and cheap treatment method with no side effect [11,13,14,16,24]. However, it could be asserted that music, as a nursing intervention, is not sufficiently used in nursing care in Turkey. In previous studies, it was determined that the music therapy applied on patients with HD decreased the anxiety [39,40,49], as well as depression [39] and pain levels [49].

4. Conclusion

It could be suggested that complementary and supportive medicine practices have become one of the important fields of interest for nursing researches in recent years and nurses who have conducted postgraduate studies have attached importance to these practices for the purpose of easing the symptoms of patients undergoing hemodialysis and enhancing their life quality. It was determined that different complementary and supportive medicine practices used in the theses provided the blood pressure regulation, decreased the symptoms of fatigue, pain, cramp and pruritus, as well as the stress and anxiety levels, and increased the sleep quality in individuals undergoing hemodialysis. According to the study results, it was found that practices of complementary and supportive medicine were effective upon individuals undergoing hemodialysis and they are expected to light the way for other related future studies. In the future studies, single-or double-blind randomized controlled trials including larger population size, involving TAT applications perform may be recommended and the results may be reflected to the patient care.

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