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REVIEW

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NURSES' PERCEPTIONS OF FUTILE MEDICAL CARE

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ABSTRACT

The increasing progress in medical and health sciences has enhanced patient survival over the years. However, increased longevity without quality of life in terminally ill patients has been a challenging issue for care providers, especially nurses, since they are required to determine the futility or effectiveness of treatments. Futile care refers to the provision of medical care with futile therapeutic outcomes for the patient. Interest in this phenomenon has grown rapidly over the years. In this study, we aimed to review and identify nurses' perceptions of futile care, based on available scientific resources. In total, 135 articles were retrieved through searching scientific databases (with no time restrictions), using relevant English and Farsi keywords. Finally, 16 articles, which were aligned with the study objectives, were selected and evaluated in this study. Overlapping studies were excluded or integrated, based on the research team's opinion. According to the literature, futile care cannot be easily defined in medical sciences, and ethical dilemmas surrounding this phenomenon are very complex. Considering the key role of nurses in patient care and end-of-life decision-making and their great influence on the attitudes of patients and their families, support and counseling services on medical futility and the surrounding ethical issues are necessary for these members of healthcare teams.

Key words: Medical futility, Perception of futile care, Nurses, Intensive care unit, End-of-life care.

1. INTRODUCTION

Care provision is the essence of nursing profession and nursing researchers have repeatedly linked the concept of health with care provision (1). In fact, meeting patient needs is the core of nursing care and providing excellent care is the ultimate goal of nursing (2).

Today, use of complex technological interventions, especially in intensive care units (ICUs), is increasing (3). Advances in medical technologies and methods have enhanced patient survival (4). In other words, all these developments and use of novel therapies have delayed disease progression to death. However, the question arises as to whether these treatment strategies are actually life-saving or they only prolong survival for patients without enhancing their quality of life (5).

Today, shortage of ICU beds and presence of different stressors in ICUs have sparked discussions on diverse issues including futile care (6). Futile care refers to the provision of medical care with futile therapeutic outcomes for the patient (7). According to statistics, 1 out of 5 patients, hospitalized in ICUs, dies in the United States (8), and nearly half of patients who die in U.S. hospitals have been hospitalized in ICUs and received futile care (9).

Nurses' definition of futile care varies depending on the patient's condition and the personal perspective of nurses. The diversity of criteria for defining this phenomenon and care providers' different opinions on this issue reflect the subjectivity of personal judgments, which are rooted in one's emotions, personal beliefs, and culture. Some experts explain futile care only in terms of patient survival, while others consider quality of life, in addition to patient survival (3). Futile care does not only entail end-of-life care, but involves any type of care which neither enhances patients' survival or hospital discharge nor helps them maintain or promote their quality of life (10).

A significant portion of resources in ICUs is allocated to futile care (9). The unspecified time of patients' need for such care imposes significant costs on patients, their families, and healthcare systems and indirectly affects nurses (11). According to a previous study, the rate of futile care in ICUs is estimated at approximately 40-60% (12). Generally, futile care provision is costly and nearly 16% of the annual budget for medical care is spent on futile care during the last 60 days of patients' lives (13).

The cost of futile care for hospitals is estimated at 23,000 dollars for each patient, requiring mechanical ventilation

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Authors (year of publication)	Title	Study design	Study population and sample size	Instruments	Findings
Meltzer et al. (2004)	Critical Care Nurses' Perception of Futile Care and its Effects on Burnout	Descriptive	60 ICU, CCU, and neuro-ICU nurses in two hospitals in Southern California (selected via convenience sampling)	Corley's Moral Distress Scale and Maslach Burnout Inventory	<ul style="list-style-type: none"> - A significant relationship between futile care, emotional exhaustion, and burnout among nurses - The need for reducing environmental stress - The necessity of reducing emotional exhaustion
Ferrell et al. (2006)	Understanding the Moral Distress of Nurses Witnessing Medically Futile Care	Descriptive	108 nurses working in ICUs, emergency rooms, and operating rooms and nurses providing end-of-life care for patients at home in two training centers in Pasadena and Washington, USA	Moral distress and futility scale	<ul style="list-style-type: none"> - The need for reducing moral distress, caused by futile care in nurses - The need for improving nurses' affection and sympathy for patients - Full nursing support for adaptation with futile care - The necessity of reducing the complexity of ethical dilemmas surrounding futile care
Heland et al. (2006)	Fruitful or Futile: Intensive Care Nurses' Experiences and Perceptions of Medical Futility	Qualitative and Exploratory	Seven ICU nurses in Australia (selected via purposive sampling)	Semi-structured interviews	<ul style="list-style-type: none"> - Use of nurses' experiences to overcome the challenges of futile care - The role of nurses as patient advocates, mediators, and coordinators for families and treatment teams - The role of nurses in providing assistance for patients and their families
McMillen et al. (2008)	End-of-life Decisions: Nurses' Perceptions, Feelings, and Experiences	Qualitative	Eight ICU nurses in UK (selected via purposive sampling)	Semi-structured interviews	<ul style="list-style-type: none"> - The key role of nurses in end-of-life care - The need for paying attention to ethical issues in care provision - The need for supporting patients and their families
Sibbald et al. (2007)	Perceptions of "Futile Care" among Caregivers in Intensive Care Units	Qualitative	14 physician directors, 16 nurse managers, and 14 respiratory therapists at 16 ICUs in Ontario, Canada	Semi-structured interviews	<ul style="list-style-type: none"> - Insistence of patients' families to pursue futile treatment - Lack of necessary skills for communication within the team - Disagreements among team members in clinical decisions - The need for general and professional training on the role and use of ICUs and alternative options such as palliative care
Mobley et al. (2007)	The Relationship between Moral Distress and Perception of Futile Care in the Critical Care Unit	Cross-sectional	100 CCU nurses in 30-bed teaching hospitals in the United States	Corley's Moral Distress Scale	<ul style="list-style-type: none"> - Development of proper strategies to decrease moral distress in ICUs - Adjustment of nurses' working hours in ICUs
Calvin et al. (2009)	The Cardiovascular Intensive Care Unit Nurse's Experience with End-of-life Care	Qualitative	19 CCU nurses in the United States	Interviews	<ul style="list-style-type: none"> - Exhausting patient treatments - Promoting family presence - Acknowledging physician authority - Walking a fine line
Piers et al. (2011)	Perceptions of Appropriateness of Care among European and Israeli Intensive Care Unit Nurses and Physicians	Descriptive analysis	1,953 physicians and nurses working in 82 ICUs in nine European countries and Israel	A questionnaire on personal and professional characteristics of physicians and nurses, ICU information questionnaire, and a questionnaire on perceptions of futile care	<ul style="list-style-type: none"> - Imbalance between the provided care and patient prognosis - Professional autonomy - Fixed workload - High systematic teamwork
Teixeira et al. (2012)	Medical Futility and End-of-life Decisions in Critically ill Patients: Perception of Physicians and Nurses in Central Region of Portugal	Descriptive analysis	147 nurses and 36 physicians in ICUs in the central region of Portugal	A researcher-made questionnaire on end-of-life decision-making and attitudes towards futile care in ICUs	<ul style="list-style-type: none"> - The need for educational promotion - The necessity of effective communication - The need for incorporating the opinions of all medical team members about end-of-life care - The similarity between the opinions of physicians and nurses in the decision-making process
Yekefallah et al. (2015)	Nurses' Experiences of Futile Care at Intensive Care Units: A Phenomenological Study	Interpretative phenomenological analysis	25 ICU nurses in 11 training hospitals, affiliated to Social Security Organization in Qazvin, situated in northwest of Iran (selected via purposive sampling)	Personal semi-structured interviews and observation	<ul style="list-style-type: none"> - Attention to the key role of nurses in futile care management - Attention to nurses' experiences of care - The need for designing proper therapeutic and research programs in ICUs - Waste of financial resources and discomfort among patients and nurses
Mohammadi et al. (2015)	Exploring the Perception of Intensive Care Unit Nurses of Futile Care	Cross-sectional	170 nurses working in CCUs, ICUs, NICUs, oncology wards, and dialysis units at teaching hospitals in South Khorasan, Iran	A researcher-made questionnaire on futile care	<ul style="list-style-type: none"> - Nurses' moderate level of knowledge about futile care - The need for programs to familiarize nurses with futile care - The need for training on the use of coping mechanisms
Borhani et al. (2015)	Moral Distress and Perception of Futile Care in Intensive Care Nurses	Descriptive	300 nurses working in CCUs, ICUs, NICUs, dialysis units, and oncology wards in Kerman, Iran	Corley's Moral Distress Scale and Futile Care Inventory	<ul style="list-style-type: none"> - A significant relationship between moral distress and futile care
Rafi et al. (2015)	End of life Care Provision: Experiences of Intensive Care Nurses in Iraq	Phenomenological	10 nurses working in ICUs in Erbil, Iraq	Semi-structured interviews	<ul style="list-style-type: none"> - Nurses' experience of different emotions ranging from emotional stress to optimism - The need for psychological support for nurses - The need for further research to explore the experiences of nurses about end-of-life care in other cultures

Table 1. The titles, methodologies, and findings of some of the selected articles

for at least 72 hours (14). In addition, insurance costs and extra healthcare expenses should be taken into account (15). Besides health organizations, families are also obliged to incur heavy costs, which may give rise to a sense of helplessness. Nurses may be also negatively influenced, given

the organizational constraints (16).

Based on previous studies, there is a significant relationship between futile care and moral distress (17, 18). Moral distress is mostly observed among ICU physicians and nurses, as they realize the futility of care provision. Also,

the quality of patient care can be negatively influenced by this issue. Overall, moral distress can lead to decreased job satisfaction, particularly among nurses, and may have negative impacts on their quality of life (17).

Futile care can lead to nurses' indifference towards patients, lack of attention to patients' pain, limited efforts in providing optimal care, failure in timely treatment, increased treatment costs, and waste of time and energy. Also, there is a significant relationship between the frequency of stressful situations (as a result of futile care) and emotional exhaustion, which is one of the main outcomes of occupational burnout among medical teams in ICUs (18). In addition, these stressful situations may intensify turnover intention among physicians, particularly nurses (19).

Overall, nurses are faced with complex conflicts due to futile care. By identifying and understanding these conflicts, nurses may be enabled to overcome such circumstances and plan for patient management (3). Therefore, planning for quality improvement of nursing care and enhancing access to counseling services for decision-making about futile care are essential (12). In general, nurses play a key role in withholding or withdrawing futile care, and they can greatly influence patients and their families if they have the required experience to overcome such circumstances (1).

According to our literature search, no review studies have been conducted with regard to nurses' perceptions of futile care. Considering the importance of care providers' viewpoints on the concept of futile care, the significance of these opinions in the quality of medical care, and the ensuing physical and mental impacts on the members of medical teams (19), we aimed to review and evaluate articles with an emphasis on nurses' perceptions of futile care.

2. MATERIALS AND METHODS

In the present study, we reviewed articles, which focused on nurses' perceptions of futile care. Available scientific databases including Medline, Pub Med, ProQuest, SID, Iran Medex, Science Direct, Noormags, MagIran, ISI, and Scopus were searched, using the following English keywords and their Farsi equivalents (MESH terms): "Futile care", "perception of futile care", "nurses", "intensive care unit", and "end-of-life care". In total, 135 Farsi and English articles were retrieved.

No time restrictions were considered in our literature search. The selected studies were published from 1994 to 2015. Among the retrieved articles, 16 studies, which were more aligned with our study subject and objectives, were selected and evaluated in this study. By consensus, studies which overlapped each other in terms of content were integrated. Since some of the included studies were related to seminars and conferences, we had no access to the full manuscripts and the abstracts were reviewed instead.

3. RESULTS

The term "futile care" was first defined in 1980 and entered the medical ethics literature in 1990 (7). Although issues surrounding futile care have been discussed in medicine over the years, there has been a growing interest in this phenomenon in recent decades and futile care has appeared as a serious concern in medical circles. This may be related

to the advancing age of human population, advances in technology, modern medical equipment, increasing health-care costs, and extreme attention to patient autonomy (15). Overall, extensive research has been conducted in this area. Some of the selected articles, their titles, methodologies, and findings are presented in Table 1.

4. DISCUSSION

Moral distress and futile care

ICU nurses and physicians experience moral distress, as they realize the futility of care provision. Moral distress may reduce the quality of patient care and job satisfaction, particularly among nurses, and negatively affect their quality of life (17). Previous research has indicated a significant relationship between moral distress and futile care (17, 18).

Mobley et al. performed a cross-sectional study, entitled "The relationship between moral distress and perception of futile care in the critical care unit". They evaluated 100 CCU nurses in the United States and revealed the high rate of moral distress among nurses who realized the futility of care provision. Also, in their study, moral distress, caused by futile care, was associated with the increased length of stay in ICUs. Therefore, further interventions are generally required to reduce futile care (17).

Apparently, different strategies need to be developed to reduce the negative effects of moral distress in ICUs. In this regard, Ferrell et al. performed a study, entitled "Understanding the moral distress of nurses witnessing medically futile care" on 108 nurses working in ICUs, emergency rooms, and operating rooms; moreover, nurses who were responsible for care provision of terminally ill patients, were included. The results showed that moral distress arising from futile care has significant impacts on the emotions and feelings of nurses; therefore, these members of healthcare teams require full support for coping with this issue (20).

Considering the ethical dilemmas surrounding futile care and the complexity of this phenomenon, Eslami et al. conducted a cross-sectional study in Kerman, entitled "Moral distress and nurses' perception of futile care in intensive care units". This study was performed on 126 ICU nurses and the results showed an average level of moral distress, associated with futile care; also, nurses had a poor understanding of futile care (21).

Moreover, Meltzer et al. conducted a descriptive study, entitled "Critical care nurses' perceptions of futile care and its effect on burnout" on 60 nurses working in ICUs, CCUs, and neuro-ICUs of two hospitals in Southern California, USA. They found that the frequency of moral distress, caused by futile care, was significantly associated with emotional distress and job burnout among ICU nurses (18).

Additionally, Borhani et al. performed a descriptive study in Kerman, Iran, entitled "Moral distress and perception of futile care in intensive care nurses". This study was carried out on 300 nurses working in CCUs, ICUs, NICUs, dialysis units, and oncology wards and showed a positive relationship between moral distress and futile care; therefore, futile care could lead to moral distress among nurses (22).

In a study by Dunwoody et al., nurses' knowledge of futile care was relatively high and adverse conditions caused by futile care were considered as the main cause of moral

distress (23). Based on various studies on the relationship between moral distress and futile care, we can conclude that repeated occurrence of futile care can affect nurses, as well as their perceptions of medical futility. Therefore, support should be provided for nurses to facilitate proper decision-making and reduce their work-related concerns.

Nurses' perception and experience of futile care

Yekefallah et al. performed a qualitative study, entitled "Nurses' experiences of futile care at intensive care units" on 25 ICU nurses in Qazvin, Iran. Futile care was defined as useless and inconclusive care, leading to the squandering of financial resources and patient/nurse discomfort, with both nursing and medical aspects. According to their study, since nurses play a key role in futile care management, awareness of their experiences with regard to futile care is the first step to establish effective therapeutic, educational, and research programs in ICUs (1).

Sibbald et al. in a qualitative study, entitled "Perceptions of futile care among caregivers in intensive care units", surveyed 14 physician directors, 16 nurse managers, and 14 respiratory therapists in 16 ICUs in Ontario, Canada. According to their study, predisposing factors for the occurrence of futile care were as follows: family's insistence to pursue futile care, lack of necessary skills or inadequate time for effective communication within the medical team, and disagreements among the members of healthcare teams in the decision-making process.

In the mentioned study, causes of futile care could be effectively eradicated by allowing families to accept the conditions of their patients. Also, based on the findings, efforts to limit futile care should focus on public and professional education on the role and use of ICUs and available alternatives such as palliative care (24). Moreover, they put a great emphasis on professional discussions about patients' resuscitation status, instructions on patient admission in ICUs, and the necessity of providing ethical and legal support for physicians in face of challenges (24).

McMillen et al. in a qualitative study, entitled "End-of-life decisions: Nurses' perceptions, feelings and experiences", evaluated eight ICU nurses. They showed the pivotal role of nurses in patient care and end-of-life decisions and highlighted the importance of support for nurses on their tasks and responsibilities. Based on their findings, ethical issues surrounding patient care are very complex and further studies are required to support patients, their families, and nurses (25).

Heland et al. in a qualitative study, entitled "Fruitful or futile: Intensive care nurses' experiences and perceptions of medical futility", assessed seven ICU nurses and showed that medical futility cannot be easily defined. To decide on the futility or efficacy of care services, we should inquire patients about withdrawing or withholding care provision. Based on their findings, nurses play a key role in the continuation or discontinuation of therapeutic measures and have significant impacts on the attitudes of patients and their families.

Experienced nurses play a key role in overcoming the challenges of futile care and can assist unskilled nurses in the decision-making process. According to the study by Heland et al., nurses play a mediating and conciliating role in

futile care for the members of medical teams and patients' families. Also, nurses' sympathetic support for the patients and their families is among the main tasks of experienced nurses for reducing futile care (3).

Moreover, Calvin et al. in a qualitative study, entitled "The cardiovascular intensive care unit nurse's experience with end-of-life care" evaluated 19 ICU nurses. In this study, they aimed to evaluate nurses' perceptions at cardiovascular ICUs about the role and responsibilities of nurses in decisions about medical treatments and end-of-life care for patients. The major extracted themes were as follows: "exhausting patient treatments", "promoting family presence", "acknowledging physician authority", and "walking a fine line". Calvin et al. believed that these findings can be used as a basis to improve nursing knowledge about end-of-life care (26).

Additionally, Piers et al. in a descriptive analytical study, entitled "Perceptions of appropriateness of care among European and Israeli intensive care unit nurses and physicians", assessed 1,953 physicians and nurses, attending 82 ICUs in 9 European countries and Israel. The imbalance between the provided care and patient prognosis was the most commonly stated cause of futile care.

In the mentioned study, presence of organizational factors such as professional autonomy, fixed workload, and high systematic teamwork in ICUs could also lead to decreased perception of futile care. Therefore, planning for the improvement of these factors in ICUs can lead to decreased understanding of futile care. Also, the comparison of physicians' and nurses' perceptions showed the higher understanding of nurses about futile care (19).

Also, perceptions of physicians and nurses were compared in an analytical study by Teixeira et al., entitled "Medical futility and end-of-life decisions in critically ill patients: Perception of physicians and nurses in central region of Portugal". The study sample size consisted of 147 nurses and 36 physicians. In the mentioned study, the major causes of ineffective and futile decisions were as follows: "non-acceptance of treatment failure", "insufficient training on ethical issues", "difficulty in accepting death", "incorrect evaluation of clinical conditions", and "difficulties in communication".

In the study by Teixeira et al., the need for developing strategies to improve communication and narrow the gap between what is thought to be the correct choice and what is actually done was highlighted. Also, incorporating the opinions of all medical team members, especially nurses, about end-of-life decisions could improve the outcomes and reduce the risk of futile care. As the results indicated, there was a statistically significant difference between the opinions of physicians and nurses about the involvement of medical team members in the decision-making process (27).

According to a qualitative study by Rafii et al. on 10 ICU nurses in Erbil, Iraq, nurses in interaction with terminally ill patients experienced various emotions ranging from emotional stress to optimism due to limited ICU resources. Further studies are required to explore the experiences of nurses about end-of-life care in other cultures. Based on the reported findings, since end-of-life care in ICUs is associated with emotional challenges, nurses need psychological sup-

port in order to provide optimal care for the patients (28).

Finally, according to a study by Mohammadi et al. on 170 nurses working in CCUs, ICUs, NICUs, oncology wards, and dialysis units of teaching hospitals in South Khorasan, Iran, there was a significant relationship between the average score of futile care and nurses' age, years of service, and type of hospital ward (29). Overall, according to various studies on the perceptions and experiences of nurses about futile care, adequate training is required to improve the use of coping mechanisms among nurses and provide psychological support to ensure optimal nursing care.

5. CONCLUSION

Since nurses play a key role in patient care and end-of-life decision-making and can significantly influence the attitudes of patients and their families, understanding their experiences about futile care is the first step for designing effective care programs in ICUs. Since futile care leads to the squandering of financial resources, moral and emotional conflicts, job burnout, and turnover intentions among ICU nurses, nursing authorities can improve nurses' productivity in ICUs by gaining knowledge about the conducted studies and providing full support for nurses.

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REFERENCES

1. Yekefallah L, Ashktorab T, Manoochehri H, Hamid AM. Nurses' Experiences of Futile Care at Intensive Care Units: A Phenomenological Study. *Global journal of health science*. 2015;7(4): 235.
2. Hajinezhad ME, Azodi P, Rafii F, Ramezani N, Tarighat M. Perspectives of Patients and Nurses on Caring Behaviors of Nurses. *Hayat*. 2011;17(4):36-45
3. Heland M. Fruitful or futile: intensive care nurses' experiences and perceptions of medical futility. *Aust Crit Care*. 2006;19(1):25-31.
4. Adolph MD, Frier KA, Stawicki SP, Gerlach AT, Papadimos TJ. Palliative critical care in the intensive care unit: A 2011 perspective. *International journal of critical illness and injury science*. 2011;1(2):147.
5. Bradley C, Weaver J, Brasel K. Addressing access to palliative care services in the surgical intensive care unit. *Surgery*. 2010;147(6):871-7.
6. Wilkinson DJ, Savulescu J. Knowing when to stop: futility in the intensive care unit. *Current opinion in anaesthesiology*. 2011;24(2):160.
7. Gabbay E, Calvo-Broce J, Meyer KB, Trikalinos TA, Cohen J, Kent DM. The empirical basis for determinations of medical futility. *J Gen Intern Med*. 2010;25(10):1083-9.
8. Espinosa L, Young A, Symes L, Haile B, Walsh T. ICU nurses' experiences in providing terminal care. *Crit Care Nurs Q*. 2010;33(3):273-81.
9. Niederman MS, Berger JT. The delivery of futile care is harmful to other patients. *Crit Care Med*. 2010;38(10):S518-S22.
10. Chwang E. Futility clarified. *The Journal of Law, Medicine & Ethics*. 2009;37(3):487-95.
11. Hanson LC, Usher B, Spragens L, Bernard S. Clinical and economic impact of palliative care consultation. *J Pain Symptom Manage*. 2008;35(4):340-6.
12. Palda VA, Bowman KW, McLean RF, Chapman MG. "Futile" care: Do we provide it? Why? A semistructured, Canada-wide survey of intensive care unit doctors and nurses. *J Crit Care*. 2005;20(3):207-13.
13. Smith TJ, Cassel JB. Cost and non-clinical outcomes of palliative care. *J Pain Symptom Manage*. 2009;38(1):32-44.
14. Gade G, Venohr I, Conner D, McGrady K, Beane J, Richardson RH, et al. Impact of an inpatient palliative care team: a randomized controlled trial. *J Palliat Med*. 2008;11(2):180-90.
15. Madani M. Ethical considerations of futile care. *Iranian Journal of Medical Ethics and History of Medicine*. 2013;6(2):31-42.
16. Davis JK. Futility, conscientious refusal, and who gets to decide. *J Med Philos*. 2008;33(4):356-73.
17. Mobley MJ, Rady MY, Verheijde JL, Patel B, Larson JS. The relationship between moral distress and perception of futile care in the critical care unit. *Intensive Crit Care Nurs*. 2007;23(5):256-63.
18. Meltzer LS, Huckabay LM. Critical care nurses' perceptions of futile care and its effect on burnout. *Am J Crit Care*. 2004;13(3):202-8.
19. Piers RD, Azoulay E, Ricou B, Ganz FD, Decruyenaere J, Max A, et al. Perceptions of appropriateness of care among European and Israeli intensive care unit nurses and physicians. *JAMA*. 2011;306(24):2694-703.
20. Ferrell BR, editor *Understanding the moral distress of nurses witnessing medically futile care*. *Oncol Nurs Forum*; 2006;33(5):922-930
21. Eslami H, Rezaei Hossein. *Moral Distress and nurses perception of futile care in Intensive care units in Kerman: School of Nursing, Kerman University of medical sciences, Kerman, Iran; 2010*.
22. Borhani F, Mohammadi S, Roshanzadeh M. Moral distress and perception of futile care in intensive care nurses. *Journal of Medical Ethics and History of Medicine*. 2015;8(2015).
23. Dunwoody DR. *Nurses' level of moral distress and perception of futile care in the critical care environment: D'YOUVILLE COLLEGE; 2010*.
24. Sibbald R, Downar J, Hawryluck L. Perceptions of "futile care" among caregivers in intensive care units. *Can Med Assoc J*. 2007;177(10):1201-8.
25. McMillen RE. End of life decisions: Nurses perceptions, feelings and experiences. *Intensive Crit Care Nurs*. 2008;24(4):251-9.
26. Calvin AO, Lindy CM, Clingon SL. The cardiovascular intensive care unit nurse's experience with end-of-life care: A qualitative descriptive study. *Intensive Crit Care Nurs*. 2009;25(4):214-20.
27. Teixeira A, Figueiredo E, Melo J, Martins I, Dias C. Medical Futility and End-of-Life Decisions in Critically ill Patients: Perception of Physicians and Nurses on Central Region of Portugal. *J Palliative Care Med*. 2012;2(110):2.
28. Rafii F, Nikbakht Nasrabadi A, Karim MA. End-of-life care provision: experiences of intensive care nurses in Iraq. *Nurs Crit Care*. 2015.
29. Mohammadi S, Roshanzadeh M. Exploring the Perception of intensive care unit nurses of futile care. *Education & Ethic In Nursing*. 2015;3(2):65-72.