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Assessing characteristics of the patients suffering from Acute Coronary Syndrome based on synergy model

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ABSTRACT

Aims: Patients' classification based on different needs in order to take appropriate decision with the aim of gaining maximum benefit is necessary for the patient. The present study had been done with the aim of assessing characters of the patients suffering from Acute Coronary Syndrome in cardiac care units based on synergy model.

Methods: This is a descriptive – analytical study, convenience sampling had been done including 800 patients that were hospitalized by diagnosis of ACS in CCU of Jahrom Medical science University hospitals in 2012. In order to collect data "assessment of patients' characteristics based on synergy model" checklist with "inquiry" method had been used. In order to analyze data SPSS 16 software and descriptive and inferential statistical methods and Kendal and Spearman correlation coefficients had been used.

Results: In the samples of the study 50.5% were male. The average age of the patients was 61.20±1.26. Findings showed that the maximum frequency of the patients considering vulnerability and complexity in level 1, in the case of stability and partnership in taking decision in level 3 and in the characteristics of returning, sources, partnership in taking care and anticipation, was in level 5.

Conclusions: Hospitalized patients suffering from ACS includes a wide range in severity of disease, clinical signs and individual and social conditions. Therefore, categorization based on different conditions for providing appropriate decision and strategy aimed at gaining maximum benefit is necessary for the patient. Using synergy model leads to predicting care needs of the patients.

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1. Introduction

ACS is said to the cases, within that ischemic coronary artery disorder, puts the person in danger of progression of myocardial injury and heart failure and almost in fifty percent of the patients, sudden death is the first sign [1]. Despite lots of progresses in improvement of care situation and ACS management, care quality in many patients has acute coronary

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problems and is far from appropriate situation [2].

Nowadays due to the emphasis on sources management, cost control, effectiveness of patient's care, promotion of quality and responsibility, good care of the patient is necessary [3].assessing services quality, is one of the indicators of interventions effectiveness that helps in improvement of providing services through monitoring system and identifying strengthens and weaknesses. Studies of quality assessment are doing by using measurement of medical outcomes, cost and patients' satisfaction [4].

On the one hand, organizational nurses do not have theoretical framework for organizing functions, researches and evaluation. Using model causes nurses' responsibility for their performance and they can predict results of their performance. Care models provide the possibility of continuity of functions during spectrum of care. Models consider special needs of the patients and they cause allocation of skilled nurses and appropriate equipment in order to have appropriate results [5].

Synergy model which had been introduced in 1993 by American Association of Critical Nursing was introduced by experts in order to clear the area of special cares activity. This model by using different ways leads to progression of competencies of nurse and being sure about his/her maximum coordination with individual needs of the patients.

The main content of this model indicated that needs or characters of the patients and their families are in interaction and effectiveness with abilities and characteristics of the nurses. Synergy is conducted when the patients' needs and characteristics, clinical unit or system are in coordination with the nurses' abilities and talents. Providing maximum care is improving by coordination between patients' characteristics (needs) and nurses' features (competencies). According to this model when patients' characteristics and nurses' competencies are together, patients meet their expectations in an appropriate level [6].

In this model eightfold characteristics of the patient including: resiliency, vulnerability, stability, complexity, resource availability, participation in care, participation in decision making and predictability had been assessed and emphasized [7].

By using synergy model, since the patient has biological, mental, social and spiritual aspects that emerge in different stages of growth, the whole of the patient (body, mind and spirit) is taken into consideration. There is coordination between patient, family and units in order to provide necessary background for nurse-patient relationship.

About using synergy model for assessing patients' characteristics in the study of Brewer et al. (2007) patients' conditions according to synergy model had been analyzed by skilled nurses and nurses of general and special units [8]. In another study by Garcia et al. (2006) patients who smoke in surgical unit and the way of providing care had been assessed based on synergy model [9].

There are not many studies about this subject in Iran. In the study of Khalifezadeh et al. (2010) characteristics of heart patients had been assessed based on synergy model by MA students. This study had been done with the aim of assessing characteristics of the patients suffering from ACS who were hospitalized in CCU wards according to synergy model in hospitals of Jahrom [10].

2. Methods

This was a descriptive analytical study. Convenience sampling had been done including 800 diseases that were hospitalized in CCUs of Jahrom hospitals by diagnosis of ACS during spring and summer of 2012. Inclusion criteria were; diagnosis of ACS by heart and veins specialist, lack of suffering from recognized mental disorder in this issue and having complete consciousness and awareness about time and place.

In order to collect data "assessment of patients' characteristics based on synergy model" checklist had been used. Checklist of assessing

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patients' characteristics had been completed by the researcher based on synergy model in "inquiry" form. This checklist has two parts. The first part is individual characteristics of the patients including: age, gender, and duration of suffering from heart diseases and assessing risk factors and in the second part patients' characteristics according to introduced eight features had been assessed in synergy model and according to the present situation. Scores of "one", "three" and "five" are belonged to every one of patient's eight characteristics including; resiliency, vulnerability, stability, complexity, resource availability, participation in care, participation in decision making and predictability. Score "one" indicates weakness, "three" indicates the average and "five" indicates well-being in these features. Relative frequency of the patients' characteristics had been achieved in all the three levels.

In order to assess validity of checklist translation of patients' characteristics based on synergy model, content validity method had been used. Also in order to increase reliability of questionnaire completion by researcher and colleagues, correlation method between people who observe or measure and determining correlation coefficient had been used and correlation coefficient had been achieved 0.91.

In this study in order to analyze data SPSS 17 software and inferential and descriptive statistical method and Kendal and Spearman correlation coefficient had been used.

3. Results

In this study 800 patients suffering from ACS had been assessed that among this number, 404 (50.5) patients were male. The average age of the patients was 61.20±1.26 years old and the average of duration of suffering from heart disease was 5.80±5.28. Among all the patients, 291 people (36.37%) were suffering from chronic diseases unrelated to ACS such as; migraine, arthritis and chronic low back pain. Regarding main risk factors also emergence of ACS, there were 356 people (44.5%) with

Table 1: frequency of different levels patients' characteristics, suffering from ACS hospitalized in CCU based on synergy model in 2011.

	resiliency		vulnerability		stability		complexity	
levels	number	percent	number	percent	number	percent	number	percent
1	166	20.8	363	45.4	128	16	330	41.2
3	310	38.7	297	37.2	517	64.6	259	32.4
5	324	40.5	140	17.4	155	19.4	211	26.4

					Participation in			
levels	resource		Participation in care		decision making		prediction	
	number	percent	number	percent	number	percent	number	percent
1	131	16.4	104	13	139	17.4	272	16.5
3	309	38.5	331	41.4	411	51.4	241	30.1
5	360	45.1	365	45.6	250	31.2	287	53.4

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positive family history, 446 people (55.75%) with high blood pressure, 243 people(30.37%) with diabetes, 180 people (22.5%) with lack of exercise, (the least risk factors), 224 people(28%) smoking, and 448 people (61 %) exposed to stress (the most risk factors).

Below table shows frequency level of every one of eightfold characteristics of synergy model with grading breakdown in the samples of the study.

The most frequency of the patients about vulnerability and complexity was in level 1, stability and partnership in decision making in level 3, and in resiliency, sources, participation in care and predictability, it was in level 5.

Kendal correlation coefficient showed that there is direct relationship between characteristics of resiliency and predictability (r=0.683) and vulnerability and complexity in care (0.590). The table below shows Kendal correlation coefficient and significance level of patients' eightfold characteristic based on synergy model.

4. Discussion

Hospitalized patients with ACS include wide range about severity of disease, clinical signs and individual and social conditions [11]. Using different grading models leads to predicting dangers and care needs [12).

Regarding determining heart patients' characteristics based on synergy model, there was a study by Khalifezadeh et al. (2010), in this action research study, 12 special MA students, patients of CCU wards, cardiac surgery and intensive care of cardiac surgery

Table2: correlation coefficient and significance level (p value) between eightfold characteristic of the patients with ACS based on synergy model.

	resiliency	vulnerability	stability	complexity	resource	Partnership in care	Partnership in decision . .	predictability
resiliency	1.000	.133	.358	-.071	.306	.196	.074	.683
		.000	.000	.029	.000	.000	.025	.000
resiliency	.133	1.000	.398	.590	-.077	-.078	.055	.162
	.000		.000	.000	.022	.021	.076	.000
stability	.358	.398	1.000	.344	.028	.066	.069	.404
	.000	.000		.000	.233	.045	.035	.000
complexity	-.071	.590	.344	1.000	-.168	-.100	.092	-.031
	.029	.000	.000		.000	.004	.008	.205
Sources	.306	-.077	.028	-.168	1.000	.524	.415	.274
	.000	.022	.233	.000		.000	.000	.000
Partnership in care	.196	-.078	.066	-.100	.524	1.000	.560	.201
	.000	.021	.045	.004	.000		.000	.000
Partnership in	.074	.055	.069	.092	.415	.560	1.000	.085
decision making	.025	.076	.035	.008	.000	.000		.013
predictability	.683	.162	.404	-.031	.274	.201	.085	1.000
	.000	.000	.000	.205	.000	.000	.013	

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had been categorized based on synergy. Findings show that from students' point of view, most of the patients in characteristics of resiliency, vulnerability, complexity of available sources and participation in decision making are in level 3. But in characteristics of participation in care and prognosis, most of the patients from students' point of view are in level 5 [10] that some cases are in consistent with the present study.

In another study by Brewer et al. (2007) with the aim of analyzing achieved findings about patients' characteristics according to synergy model that along with using case report form, categorization of patients' characteristics by a skilled nurses (more than 5 years of work experience) and nurses of general and special units had been compared [13].

Another study by Garcia et al. (2006) had been done aimed at using synergy model in surgery care of patients who smoke. In this study different aspects of using synergy model effect in cares before and after surgery in patients who smoke had been assessed. In this study in the first case report, there is a person who is 60 years old by consumption of three packs of cigarettes who was hospitalized two weeks before abdominal aortic aneurysm repair that in the approach of characteristics of resiliency, participation in care, participation in decision making, predictability and stability is in level 3, and from the approach of vulnerability, complexity and available sources is in level 5. In the second case group, there is an eight-year old girl, who is in the repair and removal of ruptured appendectomy repair and is ready to discharge, from the approach of resiliency, participation in care, participation in decision making, prediction and stability, she is in level 3 and from the approach of vulnerability, complexity, available sources, she is in level 5 [9].

According to the findings of the present study, most of the patients considering vulnerability and complexity are in level 1, and about stability they are in level 3.

In the study of Dehghani et al. (2010), factors of age, risk factors of mellitus diabetes, the area of heart attack and refer delay (distance between the hour of chest pain start and streptokinase start had effect on the level of the patient's vulnerability [14).

From the other side one of the reasons of this problem can be lack of social, economic, legal and environmental necessary standards and conditions for nurses especially in CCU wards. The large number of patients besides shortage of nurse, lack of job satisfaction due to different reasons, lack of necessary support and attention from the authorities and others, cause lack of appearance of nurses' abilities and decrease of patients' characteristics and conditions. Function of the staff of department of nursing as one of the most important human sources of the hospitals are affected from several factors such as; job satisfaction that causes feeling confident and more and further commitment and increase of service quality.

The achieved results from the study of Rouhi et al. (2011) showed that 37.7% of nurses had little job satisfaction and 2.2% had a very high job satisfaction. Also 49.6% of the sample society with the most frequency had low organizational commitment and merely 4% had very high organizational commitment.

There was significant difference between job satisfaction and organizational commitment. Rouhi (2009) emphasizes that considering nurses' job satisfaction and moderate and low organizational commitment and the direct relationship between them and since job satisfaction increases staff's commitment, so it is necessary that managers pay more attention on factors affecting job satisfaction [15].

In contrast, improvement and standardization of nurses' work conditions and making appropriate environment based on synergy model cause that nurses by using their abilities and characteristics, provide maximum resiliency for the patients and decrease vulnerability level to the possible extent and by predicting and appropriate action in order to provide patient's needs to serve patient and

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his/her family as a source and provide patient's maximum participation in decision making and care and cause maximum stability [16]. As several studies confirm this issue.

About resiliency, patients were in an appropriate situation in this study (level 5). In this regard Hashemzadeh et al. (2011) indicate that heart patients in order to achieve complete improvement and avoiding recurrent of disease, should adopt special lifestyle. This new lifestyle, in addition to observing some cases such as; quit smoking, diet with no cholesterol and regular exercise and etc., including learning different strategies of dealing with negative emotions such as; stress, anger, hostility, anxiety, depression and etc. [17] that confirm importance of education and appropriate nursing cares.

In the results of this research, characteristics of sources, participation in care and predicting they were in level 5, that shows appropriate function of the nurses in communication and need assessment of the patients, findings of the study of Rostami et al. (2011) indicate that nurses should do necessary need assessment, considering change of patients' need for starting of every educational program [18].

Results of the study of Asgari et al. (2011) indicate that patients' experiences showed that appropriate supportive behavior of the nurses has an important role in their feeling of comfort, security and trust and accelerate adopting with hemodialysis. These findings help nurses to be aware furthermore about the importance of their supportive behavior in helping patient in order to adopt hemodialysis [19].

In the study of Bagherian et al. (2011) findings indicate that there is direct relationship between supportive sources, independence, being optimistic and coping mechanisms and decrease of anxiety and finally improvement of prognosis of heart patients [20]. One of the available sources of heart patients is nurses. Considering cardiac rehabilitation based on needs and abilities of the audience, considering different social, psychological and biological dimension in individual and family levels and providing that through clear channels of communication and coordination is confirmed. Nurses as one the important member of the team of protection and rehabilitation of heart patients is necessary to consider the above matters in the areas of education services management and direct provision of services to the heart patients and their families [21].

In two characteristics of participation in decision making, only 31.2% of the patients were active (level 5). While nowadays patient's participation in choosing treatment and decision making has not only been considered as a legal right for the patient, but also it is counted as an international gold standard for health care systems, in a way that health care providers should try in order to achieve that. In different studies it has been determined that controlling chronic diseases is dependent on active participation of the patient and his/her family in care and treatment activities to a high extent. According to the belief of Sustain et al. (2005) patient' participation is dependent on relationship of patient and nurse to the high extent and this relationship needs spending time by nurses. Other studies also emphasize that successful interaction of nurse and patient needs spending time [22].

About predictability more than half of the patients (52.3%) were in level 5, it means that their condition was predictable to the high extent. Predictability of heart patient's condition is dependent on many factors. Gourki et al. (2002) in their research showed that faster recovery of coronary veins, progress in recovery of left ventricular systolic increase and level of death even after discharge decreases [23]. In the study of Rahimian et al. (2009) also there was relationship between time intervals of chest pain streptokinase injection with desirability of the treatment outcome [24]. Study of Farshidi et al. (2008) that the distance of long QT shows patients' poor prognosis after acute myocardial infarction and causes increase of arrhythmia in the patients [25].

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In the present study there is significant relationship between characteristics of resiliency, vulnerability and predictability. Regarding this, findings of Barbosa et al. (2012) indicates that there is positive relationship between grading scores of TIMI and GRADE (grading of severity and prognosis) and the extent of involvement of coronary veins [26].

5. Conclusions

Synergy model as a professional care model expresses a framework that clears relationship of nurses with patient, other nurses with other care team. This model makes a common language for nurses in order to define and makes relationship between patients' needs. This model is a perfect framework for organizing function of taking care of the patient in the line of health care system.

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References

1. Kaplow R. critical care nursing synergy for optimal outcomes, Jones and Bartlett. Canada. 2007.
2. Fakhrzadeh H, Moradi M, Mahmoudi M, Nader Pour N, Baghery Rad M, Ahmad Zadeh ASL. Examining the care quality of patient with acute coronary syndrome in Amir Aalam hospital related to Tehran Medical Sciences University. The magazine of medical college of Tehran Medical Sciences University. 2006;64(2):149-54.
3. Ghamari Zare Z, Anousheh M, Vanaki Z, Hajizadeh A. Examining the nurses performance quality and patients satisfaction in intensive care units. East physician. 2008:10(1):27-36.
4. Taghizadeh, Z, Rezayi Pour, A, Mehran, A, Alimoradi, Z. Applying the communicational skills by midwives and its relation to clients satisfaction. Life. 2006;12(4):47-55.
5. Kaplow R, Reed K. The AACN Synergy Model for Patient Care: A Nursing Model as a Force of Magnetism. 2008.
6. Peterson S, Bredow T. Middle range theories. 2th , USA, lippineott Williams & wilkins.113. 2009.
7. Kerfoot K, Lavandero R, Cox M, Pacini C, Hanson D. Conceptual models and the nursing organization: Implementing the AACN Synergy Model for patient care. Nursing leader. 2006;4(4):2-20.
8. Kuriakose A. Using the synergy model as best practice iv endotracheal tube suctioning of critically ill patients. Dimensions of critical care nursing 2008; 27(1):10-5.
9. Garcia J, Gay G, Heater D, Butts A, Heath J. Application of synergy model with the surgical care of smokers. Critical care nursing clinics. 2006;18:29-38.
10. Khalife Zadeh, A, Tavasoli, A, Golshahi, J, Sanei, H, Mir Dehghan, A, Payeh dar, Z et al. Applying the Synergy Model in clinical education of critical nursing students (MSC) and patients with cardio vascular disorder". Iranian magazine in Medical educatio 2010; 10(5):593-601.
11. Antman EM, Cohen M, Bernink PJ, McCabe CH, Horacek T, Papuchis G et al. The TIMI risk score for unstable angina/non-ST elevation MI: a method for prognostication and therapeutic decision making. JAMA. 2000;284(7):835-42.
12. Yan AT, Yan RT, Tan M, Casanova A, Labinaz M, Sridhar K et al. Risk scores for risk stratification in acute coronary syndromes: useful but simpler is not necessarily better. Eur Heart J. 2007;28(9):1072-8.
13. Brewer BB, Wojner-Alexandrov AW, Triola N, Pacini C, Cline M, Rust JE et al. AACN Synergy Model's characteristics of patients: psychometric analyses in a tertiary care health system. Am J Crit Care. 2007; 16(2):158-67.
14. Dehghani M, Eshraghi A, Taghi Shakeri M, Rastgar A, Hoshmand G. Influence of various factors on Response to Streptokinase therapy for acute myocardial Infarction. Madical Journal of University of Medical Science. 2011;54(2):113-9.
15. Rouhi Gh , Hosseini SA, Asayesh H , Behnampoor N, Rahmani H. Relationship between nurses spent time for care and patients satisfaction in internal ward in Gorgan 5th Azar Hospital. payavard salamat. 2009; 3(2-1):65-74.
16. Arshin A. Using synergy model to guide the practice of rapid response teams. Dimensions of critical care nursing. 2010;27(1):10-5.
17. Hashemzadeh A, Garooci Farshi M, Halabianloo G, Maleki Rad A. The study of effectiveness of relaxation and distraction techniques training in

[Downloaded from mail.jccnursing.com on 2026-11-14]

anxiety reduction in cardiac patients. Arak Medical University Journal (AMUJ). 2011;14(56):97-105.
18. Rostami H, Ghahramanian A, Golchin M. Educational needs of myocardial infarction patients. The Journal of Urmia Nursing and Midwifery Faculty. 2011;9(3):157-64.
19. Ascari M, Mohammadi E, Fllahi M, Tamadon M. Hemodialysis patients' perception from nurses' role in their adjustment with hemodialysis: A qualitative study. Koomesh. 2011;12(4): 385-95.
20. Bagherian Sararoudi R, Maroofi M, kheirabadi G, Fatolah Gol M, Zare F. Same coping styles related to reduction of anxiety and depressive symptoms among myocardial infarction patients. Koomesh. 2011;12(4):356-3.
21. alavi M, abedi H, Rabiee K, Karimi M, Sarrafzadegan N. Concept of the quality of the educational services in cardiac rehabilitation. IJNR. 2011;6(20):6-16.
22. Sahlsten M, Larsson I, Plos K, Lindencrona C. Hindrance for patient participation in nursing care. Scand J Caring Sci. 2005;19:223-39.
23. Goreki A,Bednarz B, Chamiec T, Lukaszewicz R, Maciejewski P, Ceremuzynski L. Effect of thrombolysis delay on the clinical course of acute myocardial infarction in a Warsaw hospital. Polish Heart J. 2002,(7):16-21.
24. Rahimian B, Nasiri M, Halajian K, Ahmadzadeh B. ST segment and CPK enzyme changes according to Streptokinase injection time in acute MI referring to Emam Sajad hospital in Ramsar. Dena Scientific J. 2007;12:35-42.
25. Farshdi H, Yousofian S, Sobhani M, Rahimi SH. QT-Dispersion as a potential marker in prognosis of acute myocardial infarction. Hormozgan Medical J. 2007;48:223-30.
26. Barbosa CE, Viana M, Brito M, Sabino M, Garcia G, Maraux M, Souza CA, a Noya-Rabelo M,. Esteves JP, Correia LC. Accuracy of the GRACE and TIMI Scores in Predicting the Angiographic Severity of Acute Coronary Syndrome. Arq Bras Cardiol. 2012.

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