

# Designing a Process Model of Home Care Service Delivery in Iran: A Mixed Methods Study

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## ABSTRACT

**Background:** Considering the position of home health care in the current world, the objective of this study was to design an applied model of providing home care services in Iran.

**Methods:** The mixed methods approach was employed in three stages in Iran from Feb 2015 to Sep 2016. During the first phase, the qualitative method of content analysis was used. Data were collected by conducting 26 individual interviews and holding one focus group session involving 7 people. Data analysis was based on Graneheim and Lundman's approach to content analysis.

In the second phase of the study, a literature review was carried out and at the end of this stage, a preliminary model was designed. The model was standardized in the third phase using the Delphi method with 23 participants in two rounds.

**Results:** In the first and second stages of the study, various categories emerged including patient referral, agreement, determination of the needed level of care, care plans designing, provision of comprehensive services, documentation, service monitoring, inter-professional cooperation, issuance of death certificates at home, ethical considerations, and the evaluation of services. Then, in the Delphi phase, 20 (95.2%) of the experts confirmed the structure and content of the model and its applicability.

**Conclusion:** The designed model can be helpful in organizing the provision of integrated and comprehensive health services to clients at home, which can be effective in improving the clients' health and enhancing their self-care and autonomy.

**KEYWORDS:** Home care services, Iran, Process modelling, Qualitative study

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**INTRODUCTION**

The use of home care services has increasingly grown in recent years on a global basis, due to the growing number of the elderly, the rise in the occurrence of chronic diseases, and numerous benefits of using this care method.<sup>1,2</sup> Patients who need to receive home care services may have complex problems and require different levels of care and attention.<sup>3</sup> Home care involves the provision of a variety of clinical and medical services that are provided directly or indirectly to patients in their places of residence and in their communities. These services can include medical, physiological, or social assessments, wound care, education on the use of drugs, pain management, patient education, disease management, physiotherapy, speech therapy, medication reminders, and the empowerment of patients and their families to prevent diseases and promote their own health. This care method can also be used during the recovery process after discharge from the hospital, especially during the first weeks after discharge.<sup>4</sup>

Care services fall into the two general categories of medical and non-medical services. Medical services are provided to patients by skilled individuals such as nurses, physicians and rehabilitation teams. Household chores including shopping, cooking and the like are offered to patients and their families by unskilled individuals.<sup>5</sup> This type of care leads to shorter hospital stays, fewer readmissions, fewer hospital-related complications, reduced healthcare costs, and patient autonomy, which will ultimately improve the health outcomes, quality of life, and patient satisfaction.<sup>6</sup> Home care centers face numerous problems during the processes of admission, management, and provision of health services to these patients.<sup>7-9</sup> Proper organization of these home-delivery processes can ameliorate these issues and improve the quality of services offered to patients at home.<sup>10</sup> The organizational care process determines the task process, task timing, the responsibility of each staff member, and the manner and time of the process evaluation. Care planning is an integrated care

approach for organizing the care of people with multi-morbidities and chronic conditions. The main purpose of designing a care program is to individualize the care plan of individuals, so that each person receives care according to his/her particular condition, and this care model can act as a roadmap.<sup>11</sup> Designing proper care programs for patients increases client satisfaction and confidence, reduces the anxiety and negative emotions of the patients, leads to a better understanding of individual needs, establishes better and more positive relationships between professionals, and has positive and lasting effects on the clients' health.<sup>12</sup>

Home care is delivered differently in various parts of the world,<sup>13</sup> and the term of "home care" has differing meanings in different countries.<sup>2</sup> Surely, healthcare systems have to design and develop proper home care guidelines and models to better benefit from the advantages of home care.<sup>9,14</sup> Each country should provide home care services to the population based on its own guidelines. Most developed countries have specific guidelines and models for home care services in their country, designed based on their own demographic status, cultural context, and the structure of the health system.<sup>2</sup>

Iran as a developing and populous country in the Middle East is facing the increasing burden of chronic diseases and the aging phenomenon<sup>15</sup> and has a health system that complies with the network system, and its services are offered to the society based on the concept of primary health care and at three levels of prevention. Structurally, this system involves comprehensive urban and rural health centers, each of which provides health services to one specific region. Community health centers may refer clients from environmental levels to general and specialized hospitals.<sup>16</sup> Notwithstanding the fact that home care service is one of the most important components of healthcare systems, home care as a new care approach has not been adequately institutionalized in this structure; moreover, home care faces many problems

in the managerial, processing, and structural dimensions.<sup>17</sup> To organize the home care process, the entire system must follow a single, integrated process. Considering the fact that there is no proper model for the provision of home care services in Iran, and the extensive experiences of the researchers in home care in Iran, this study aimed to design a process model of home care service delivery in Iran.

## **MATERIALS AND METHODS**

The sequential exploratory mixed methods design was selected and used for this study.<sup>18</sup> The steps undertaken in this study took advantage of both qualitative and quantitative methods in three phases. The first phase of the study was conducted by employing the qualitative content analysis approach, from Feb 2015 to Sep 2016.

The study participants included patients and families of patients who were receiving home care services, doctors, nurses, policymakers, caregivers and faculty members all over Iran. The inclusion criteria for health care providers were being willing to participate in the study, having at least one year of experience in the field of providing home care, or having managerial or policymaking experience in this field. The inclusion criteria for patients and their families included having received home care services from home care centers for at least two weeks and being communicative and willing to participate in the study. The exclusion criteria were being unwilling and unprepared to participate in the study.

Sampling was performed using the purposive method. Data were collected using semi-structured individual interviews with 23 participants. Three face to face individual interviews were conducted with one of the participants and two interviews with another participant. The other participants were each interviewed once. In total, 26 individual interviews were conducted. All interviews were conducted by the fourth author in a private room according to the preferences of the participants. The interviews were recorded by an electronic device. The guiding

questions were semi-structured and included: "Can you talk about the nursing care you receive at home?" "What do you think about home nursing care offered in Iran?" "What are the problems of home nursing care in Iran?" During the interviews, probing questions such as "Can you explain more?" "Can you give an example?" and other questions were asked to contribute to deeper exploration of the subject. Sampling continued until the participants did not offer new information and new data could not be obtained from the interviews.<sup>18</sup> Individual interviews lasted about 30-40 minutes and the focus group meeting lasted about 94 minutes.

Besides personal interviews, we also conducted a focus group for complementing and enriching the study data. 7 participants took part in the focus group session. These participants were recruited among the participants in the personal interviews.

Data were analyzed based on the Lundman and Graneheim's method simultaneously with the interviews.<sup>19</sup> To ensure the trustworthiness of the data, we used Guba and Lincoln's criteria of credibility, confirmability, dependability and transferability.<sup>20</sup>

In the second phase, the research team conducted a comprehensive review of the available articles to further enrich the data collected in the first phase. The team also benefited from the experiences of other countries regarding home care guidelines and models.

To access the instructions and models of home care services in different countries, the researchers visited the official website of the target country's health system, and after extensive search, recovered the desired instructions regarding home care health services. In this regard, a comprehensive search was conducted on databases, such as Scopus, Medline, Web of Science, Google Scholar, Magiran, Sid, and Iran Doc. The English keywords, "regulation", "guideline", "model", "instructions" separately or with the keywords "home health care", and also the equivalent Persian keywords were used for the

search without limiting the publication year. Findings of the literature review were labeled as codes and then merged with codes extracted from the qualitative stage of the study. At the end of the second phase, the research team designed and developed the initial draft of the home health care model according to the information gathered in the prior phases.

In the third stage of the study, the model was standardized using the opinions of the experts.<sup>20</sup> The participants in the Delphi phase were 30 people, including three policymakers of the health system, nine relevant faculty members, seven nurses, three physicians, seven administrators and a caregiver of health centers that offered home care. Then, all codes present in the preliminary model were made into a questionnaire. It included 26 questions in 5 domains including methods of referral to home care centers (five questions), assessment methods (five questions), agreement (two questions), care planning (eighteen questions), and evaluation methods (six questions). Each question was scored on a 4-point Likert Scale.

In the first round of the Delphi method, 30 electronic files of the first draft of the home care model were emailed to experts as questionnaires. At the end, only 24 completed questionnaires were returned to the researcher. The returned data were analyzed using SPSS software version 23, and the mean and median of each criterion were determined. The comments of the participants that had been added to the questionnaires were also evaluated by the research team. Based on the 4-point scale used in this study, the range of disagreement was from 1 to 1.99, the neutral range was from 2 to 2.99, and the range of agreement was from 3 to 4. Thus, standards with a median score lower than 1.99 were removed, standards with a median score of 3 were accepted, and those with a median score of 2 to 2.99 were entered into the next round of Delphi. In the second round of the Delphi process, the amended model (from the first phase of the Delphi round) was emailed to 24 experts who had completed the questionnaire in the first phase. At the end,

21 participants completed the questionnaire and returned it to the research team. Then, the data were analyzed and the mean and standard deviations of each of the desired criteria were determined. At this stage, it was concluded that the study participants had reached an agreement on the structure and components of the proposed model.

The proposal of this research was sent to the Ethics Committee of the Tehran University of Medical Sciences and was approved to be carried out with the code IR.TUMS.REC.1394.175. Furthermore, an informed written consent was obtained from the participants in the qualitative phase. Throughout the study, the participants had the right to withdraw from the study at any time and they were assured about the anonymity and confidentiality of their information.

## RESULTS

### *Results of the First and Second Phase*

In total, 23 participants took part in the individual interviews, including 15 males and 8 females and the focus group consisted of 7 individuals, including 6 males and one female (Table 1). In this section of the study, the context of home health care in Iran was revealed and the results were published as two articles,<sup>10, 17</sup> some findings of which will be mentioned briefly. In the second phase of the study, the findings of the literature review were extracted as codes and then merged with codes extracted from the qualitative stage of the study as follows.

### **Merged Codes**

#### *Patient Referral*

The patients themselves or their families may ask for the service, home health care may be a continuation of hospital services, or the patient may come to make use of home care as a result of referral by a physician. "... *Patients themselves or their families may come to the institute ... Some patients have received care in hospitals, or they may have been referred by physicians...*" (P 15). In other



**Table 1:** Characteristics of the participants in the individual interview and focus group

Number of Participants	Sex of participants	Age (year)	Educational Level of participants	Work experiences (year)	Position of participants
P1	Male	3	PhD in Community Health Nursing	11	Faculty member
P2	Female	48	Specialist Physician	25	Policy maker and active delivery of home care
P3	Female	43	PhD in Community Health Nursing	13	Faculty member & Family member a patient
*P4	Male	52	PhD in Community Health Nursing	26	Faculty member
P5	Male	54	MSc in Nursing	30	Deputy of Iranian Nursing Organization
*P6	Female	54	MSc in Nursing	30	Faculty member & nursing director of home care agency
*P7	Male	34	BSc in Nursing	5	Nurse of home care
*P8	Male	62	Specialist Physician	30	Policy maker in home care field (3 Time interview)
*P9	Male	43	General Physician	16	General physician of home care & manager of home care agency
P10	Male	48	PhD in Medical-Surgical Nursing	18	Faculty member
P11	Male	48	Nursing Assistant	23	Nurse of home care
P12	Female	29	Bachelor in Human Sciences	-	Family Member of patient
P13	Male	34	Diploma	3	Caregiver
*P14	Male	32	BSc in Nursing & Engineer in Medical Equipment	9	Nursing director of home care agency
*P15	Male	41	MSc in Nursing	8	Expert of issuance certificate in Deputy of treatment
P16	Male	42	MSc in Nursing	17	Deputy of Nursing in ministry of health
P17	Male	33	Nursing Assistant	12	Nursing Assistant in home care
P18	Female	32	Bachelor of Social Worker	3	Caregiver
P19	Female	41	PhD of Textile	-	Family Member of patient
P20	Female	23	Bachelor in Human Sciences	-	Patient
P21	Male	43	Under the diploma	-	Patient
P22	Female	48	Under the diploma	-	Patient
P23	Male	56	Under the diploma	-	Family Member of patient

\* Participants in the focus group

countries, “the clients or their families contact local authorities, and authorities conduct the necessary assessments (England)”. “Clients ask the primary care physician for home health care services. If necessary ...the client is referred to a home health care institute (Japan)”. “The clients or their families contact local authorities and then the authorities make the necessary arrangements for assessment (Iceland)”.

#### *Creating the Medical Records for the Admitted Clients*

It’s necessary to create medical records for the clients. “... In each institute, on the client’s admission, a nurse creates a file for him/her ... This file contains the client’s demographic characteristics and other information about the client’s condition ...” (P 15). “All clients should have health

files in the institute. All home health cares delivered to the clients should be recorded (United States)".

#### Agreement

It is necessary to sign a contract between the institute and client. "The observance of personal and social rights and duties, payments, costs, and economic issues should be predetermined in an agreement..." (P 15). "In each institute, a contract should be signed between the client and the institute according to the regulations (Iceland)". "..., but it is essential that all agreements be approved by the client or his/her family..." (P 14).

#### Determining the level and type of services

The health service delivery agent should determine the care level prior to the admission of the patient "...Which level of care does this patient need? ... (P 17)". "After applying for home health care, a comprehensive assessment of the condition of the patient should be performed by a nurse or social worker... a special care plan will be designed for the client based on the dependency level, health problems, family status, and access to informal caregivers (England)".

#### Designing a Care Plan for Client

The director of nursing designs home health care plans based on the clients' needs. "...to take all dimensions into account ... It is necessary that the care plan be designed in consultation with the client's family..." (P 14). "The care plan should be designed based on the needs and social and financial status of the clients (Norway)". "... For instance, once someone called my institute and told me, 'we are Zoroastrians, don't send a religious bigot for my family' ..." (P 6).

#### Comprehensive Services

It is necessary for the clients to be able to receive comprehensive care based on the care plans and provide multi-dimensional services to the clients. "... laboratory, physiotherapy, occupational ... services are essential for

home health care institutes ... (P 14)". "The home health care institute should provide at least one main service to the clients (United States)". "...The care plan should be designed in a way that the client does not need to be referred to the health care center (Japan)". "...The care plan should be responsible for all of the client's health problems..." (P 8).

#### Documentation

Clients should have two files, one at home and the other in the institute, and the providers should record the provided para-clinical services and information in two copies, one for the institute and another for keeping at home. "... The client or his/her family need to have a hard copy of the laboratory tests at hand, so that they can show them to medical professionals ..." (P 14). "... In each institute, on the client's admission, a nurse creates a file for them ... This file contains the client's demographic characteristics and other information about the client's condition ..." (P 15). "All clients should have health files in the institute. All types of home health care delivered to the clients should be recorded (United States)".

#### The Monitoring of Services

All nursing services provided by the nurses of various levels (registered, auxiliary nurse and ...) should be managed by the director of nursing. "All services should be monitored by a registered nurse as the supervisor (Canada)". "Auxiliary nurses deliver all services based on the orders of physicians or registered nurses (Canada)".

#### The Inter-Professional Cooperation

Data analysis showed that home care involves teamwork, and it is necessary that different health professionals cooperate to provide services to the patient. The majority of the participants believed that if health care professionals provide services to the patients individually and without communicating with each other, the client would not be able to receive all the services he/she needs. "... No one can be an expert in all areas ..." (P 7)

### *Written Death Certificates Issued at Home*

If the client dies at home, the death certificate should be written and confirmed by a physician at home "... *If the patient's death occurs at home... the body should not be transferred to a hospital or a health center for the issuance of a written death certificate ...* (P 8)"

### *Ethics*

During the process of the delivery of home health care, the rights of the clients should be respected based on the pyramid of patient rights. "*The rights of the patients and their families should be respected based on the pyramid of patient rights during the service delivery process (United States)*". "... *In all stages of service delivery, we should consider the humanitarian aspects ...*" (P 9).

### *Service Evaluation*

Each client's condition should be regularly evaluated. "... *It means that the plan that we wrote for the client should be evaluated ...*" (P 15). "*The manager of the home health care institute should evaluate the condition of the clients; also, he/she is responsible for monitoring the delivery of services to the clients (Australia)*". "*The quality of each service should be evaluated based on standard guidelines (Australia)*". "*All institutes should monitor the quality of services they offer using standard instruments (Japan)*". "*The available standard form should be used to evaluate the service quality (France)*".

### **Development of a Process Draft**

Next, based on the extracted concepts, the research team defined the preliminary model of home care service delivery as follows:

To start the home care process, patients are referred to home care institutions via two routes. The first route involves hospitalized patients, who have reached a stable condition, and who can receive their care services at home in continuation of the treatment process. The second group of patients includes individuals who have gone to specialty clinics

as outpatient clients and are referred by their physicians to home care institutions. After the referral, the nursing director makes an initial assessment of the patient's condition to determine whether the institution can meet their health needs. If these needs can be met, the patient is admitted, or if not admitted, the patient is referred back to his/her physician with a letter explaining the reasons. If the patient can be admitted, an agreement must be drawn up between the patient or his legal representative and the institution. Then, the nursing director conducts a comprehensive assessment of the patient, as a result of which it may be determined that the patient needs to receive basic or advanced services, on an intermittent basis or round-the-clock. In both groups, the nursing director is in charge of the management of the care of the patient. However, in the case of patients who need to receive basic services, a certified auxiliary nurse delivers non-medical services to the patient, while in the case of patients who need advanced services professionals of the health team deliver the services. In patients who need advanced services, teamwork and inter-professional cooperation is the basis and the nursing director is responsible for coordinating the efforts of the team. Additionally, in patients who need basic care too, it may be necessary to take advantage of the services of other members of the home care team, and this is also coordinated by the nursing director. In both basic and advanced care, after the comprehensive assessment of the patient's condition by the nursing director a care plan is drawn up for them which is evaluated over time based on the patient's condition, and which may be extended or modified. Moreover, the type of care, whether basic or advanced, may change over time and patients who need advanced and professional care may be switched to basic care; also, the patients who need basic care may require more advanced services later. This care process continues over time until the patient gains complete independence in meeting their daily needs or dies.

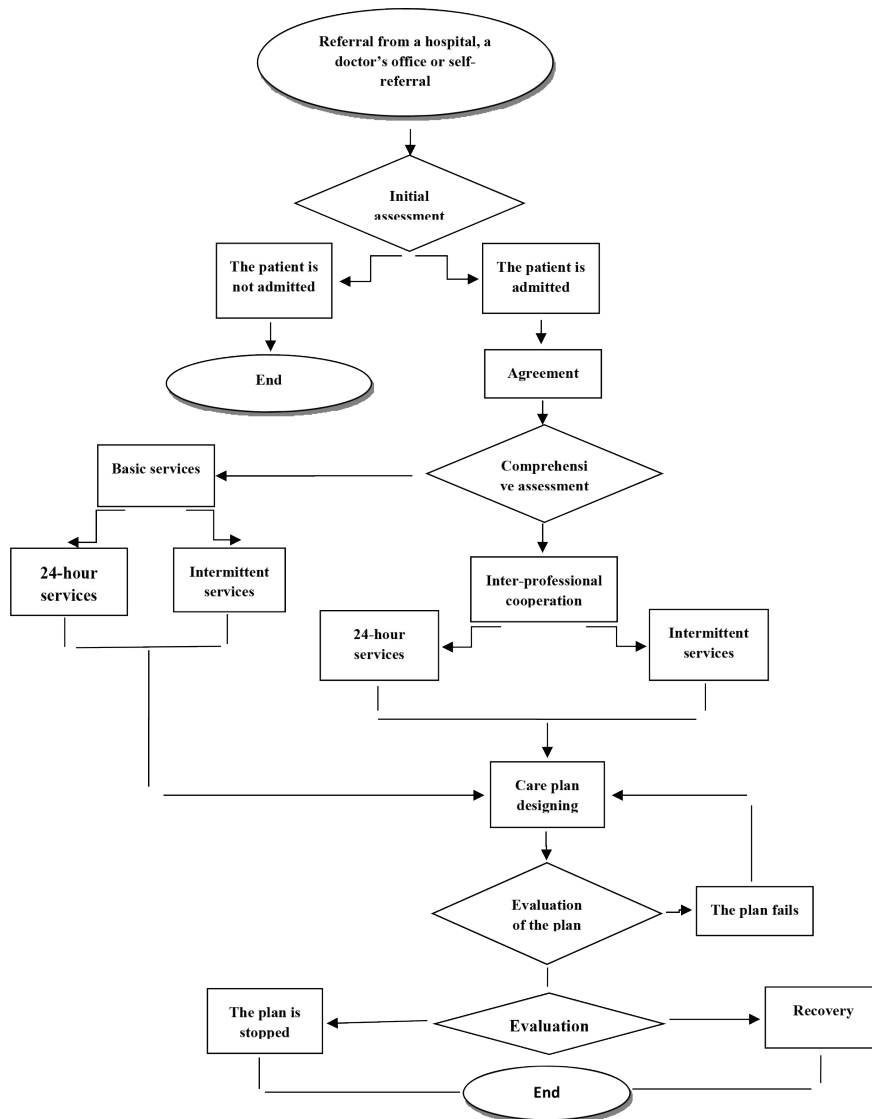


Figure 1: Process model of home health care

**Results of the Third Phase**

In the Delphi phase, 13 males and 11 females participated in the study. Data analysis revealed that all the codes obtained a mean score greater than 3, except for the item that was related to provision of all para-clinical services for patients by the home care agency, which had obtained the score of 2.72. Also in the comment section, each participant had suggested some changes in the content and structure of the model. Finally, based on the final results of this study, the model was approved by the research team (Figure 1).

**DISCUSSION**

In this study, after the qualitative and quantitative stages, a model was designed for

home health care in Iran. The concepts and stages of the home care process are consistent with those developed in the Model of Nurse Decision-Making, developed by Elliane Irani in the Mid-Atlantic States. In the Model of Nurse Decision-Making, transition process of patients from hospital to home is managed and Care planning for post-acute services should be started from hospital and in-patient provider has close communication with care provider in the community.<sup>21</sup>

The starting point for the designed model in this study is the route of referral of the patient to the home care institutes. The clients at various levels of health may be referred to home care centers and may need to receive a variety of services with various purposes and missions. For healthy people who seek services, these



services are called community-based home care services based on the definition offered by the World Health Organization, in which home care centers and healthcare providers enter the communities to improve the health of their clients and families.<sup>2,22</sup> Another group of people consists of those who suffer from an illness and are referred from health facilities (hospitals, clinics, etc.) or who refer personally. The provision of services to this group of people is at the secondary and tertiary levels of prevention, and the WHO refers to such services as hospital-based home care services.<sup>22</sup> Considering the hospital-based nature of Iran's health system<sup>17</sup> and the high burden of diseases in health centers and resource constraints, it seems that admissions and delivery of health services had better be of the secondary and tertiary levels of prevention at present.

Prior to admission, an initial assessment should be made to determine whether the condition of the client is such that the home care center can play an effective role in improving his/her health and recovery, and to determine whether the patient can be cared for at home or whether it is necessary for the client to refer to inpatient settings for specialized services. In line with this concept, another study noted that during the initial assessments, the needs of the patient and his/her family are determined, and then the possibility of providing services to the patient is evaluated according to the resources of the home care institution, specialties, ideals, and care approaches.<sup>23</sup> After the initial assessment of the client and her family, it becomes possible to admit the patient and his/her family, in which case the patient is admitted according to the regulations of the institution, and home care records and files are created for them.

The next step, after the patient's admission, is the contract that should be signed between the home care center and the client or their legal representative. In this agreement, the expectations and duties of the institution and the family should be clearly stated. It is necessary that in this stage, to hold different consultation sessions among the experts,

patient, and family, so that the family and the institute will be able to discuss the duties they have towards each other, the length of service, costs, possible errors, etc. Then, it is necessary for the patient to be thoroughly assessed by the care coordinators to determine which advanced services are required for the patient, and which specialists should be involved in the provision of health services to this patient, how each of them can contribute to improving the health of the patient, how they provide health care services, how evaluations are conducted, how and when to modify the care plan, and what the new care plan should include.

A care coordinator is an experienced nurse who is a member of the home care team and can make decisions about the assessment of the patient's condition, his/her needs, and designing an appropriate patient care plan to promote the patient's health status and improve the patient's condition.<sup>24</sup> The care plan should be designed at the presence and with the cooperation of the patient, his/her family, and the health team, and this care plan should be designed in such a way that the patient can receive multidisciplinary services from different professionals.<sup>25</sup>

According to the results of a study, in home care for patients referred from hospitals, if the patient is visited by nurse-physician collaboration during discharge from the hospital, the rate of rehospitalization decreases.<sup>3</sup> Moreover, the coordination and communication of home care providers with inpatient care providers can enhance and improve the patient care. In this regard, in the model of nurse decision-making, the patient's engagement in the decision-making process has been emphasized.<sup>21</sup> Additionally, the care plan should be dynamic and ongoing, so that periodic evaluations and patient feedback become possible.<sup>26</sup>

After comprehensive assessment, it may be determined that the patient should receive one of two general levels of care, either basic care or advanced care. Basic care aims to help the client and the family

more closely with non-medical services, such as the physiological needs and daily tasks. Certified nursing aid under the supervision of a home care facility can provide non-medical services to the clients. However, in advanced care qualified health providers are required to deliver medical services to families based on the clients' needs. Both of these types of services can be offered intermittently or on a 24-hour basis for the client. In the intermittent type, caregivers go to the place of residence of the client and provide the desired services. But in the 24-hour type, caregivers are required to serve in the homes of the clients as residents, and the client is monitored at home by these people day and night.

During the provision of health services by the health care team, formative assessments are carried out according to the conditions of the patients, and, based on these assessments, the care plan may persist or with the consent of the health care team, changes may be made to the care plan. This cycle is repeated until the client either recovers, or dies.<sup>10</sup>

During the provision of health services, whenever it may be needed, in consultation with the patient's family and health care team, the patient is referred to health centers for admission or hospitalization and for more specialized care.

In the qualitative phase of the study, interviews were conducted with stakeholders who were scattered around Iran, and given that Iran is a country of diverse ethnicity and cultures, some of the interviewees may have been influenced by the context and culture they belong to. However, by conducting an integrated study, it was tried to investigate all aspects of the target phenomenon in various contexts. The limited number of previous studies in Iran about home care and inadequate knowledge and experience regarding this kind of health care, were among the other limitations of this study.

## CONCLUSION

In this study, a model for managing the home

care process was designed, which allows the patients to be referred to home care centers as needed, and home care providers can admit and offer care to patients based on this model. Providing home care services based on this model can improve the quality of home health care services offered to patients; on the other hand, the accreditation of the services provided to patients and their families can be performed more easily by the regulatory agencies using this model. In order for this model to be institutionalized in the structure of the Iranian health system, it is necessary to apply this model in a pilot phase in some provinces or cities to find its strengths and weaknesses, so that after barriers to its implementation are identified and removed, patients can receive quality services at home from health teams based on this model. Furthermore, given the context-based nature of home care in each province, the designed model should be adapted to its own context after the pilot phase.

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