

# BMJ Open Quality **Concept analysis of patient safety in home care: a hybrid model**

Sahar Keyvanloo Shahrestanaki,<sup>1</sup> Forough Rafii,<sup>2</sup> Tahereh Najafi Ghezjeljeh\*,<sup>2</sup> Mansoureh Ashghali Farahani,<sup>2</sup> Zahra Amrollah Majdabadi Kohne<sup>1</sup>

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## ABSTRACT

**Background** Patient safety in home care is a fundamental and complex concept in nursing. This concept includes a number of challenges in patient care. Studies have shown that there is no clear and uniform definition for this concept.

**Objective** The objective of the present study was to analyse patient safety in home care in Iran.

**Methods** The study was done using a hybrid model at three phases, including theoretical, field work and the final analysis. We searched valid databases including MEDLIN and CINHAL; electronic references including Web of Science, Scopus, Ovid, ProQuest, PubMed and Persian databases including Magiran, IranDoc and SID during 2008–2022, using these Persian and English keywords: Patient Safety, Safety, Home Care Service, Domiciliary Care, Home Care and Home Health Care. A total of 16 articles were searched in the theoretical phase and then analysed by content analysis. In field work phase, nine participants were interviewed (nurse, family and patient) and then the interviews were analysed by the content analysis method. In the final analysis phase, a general analysis of the previous two phases was performed and after determining the attributes, antecedents and consequences, a final definition of patient safety in home care in Iran was presented.

**Findings** Based on different studies, patient safety in home care is a multifaceted concept, which encompasses physical, mental, social and practical dimensions. Evaluation, prevention, participation and commitment to the safety culture are the core features of this concept. The patient care concept depends on the commitment of the involved participants, adequate resources, environmental conditions, support of the involved centres (home care agency, hospital and the insurance), self-efficacy and the ability of the caregivers (nurses).

**Conclusion** Defining the concept of patient safety in home care provides a basis for the development of a safe patient care system at home. This concept analysis for patient safety in home care could be a guide for future studies.

## INTRODUCTION

Safety is one of the basic attributes of quality nursing care.<sup>1</sup> Today, with the development of nursing care management mechanisms and because of the need for patients' early discharge from the hospital, home care has become one of the important issues of nursing.<sup>2</sup> Providing safe and quality services

### WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Patient safety in home care is one of the dimensions of healthcare quality. Patient safety in home care has always been one of the most important challenges in this field due to the high-risk nature of the home. Patient safety is usually ignored in home care compared with the hospital.

### WHAT THIS STUDY ADDS

⇒ Our study was able to provide a complete and comprehensive definition of patient safety in home care. We found that patient safety in home care is a multifaceted concept, which encompasses physical, mental, social and practical dimensions.

### HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ The results of the study be used as a basis for the formulation of detailed safety guidelines for home care and the development and implementation of more practical research projects in the field of nursing care at home.

to patients is part of their rights in receiving healthcare.<sup>3</sup> Therefore, patient safety is currently one of the main concerns of the health system, which is also emphasised by the WHO.<sup>4</sup> Despite the existence of home care guidelines in the world, patient safety and the possibility of risks at home is still an important challenge.<sup>5</sup> In addition to having unpleasant consequences for the patient and the family, unsafe services cause psychological pressure on the health system staff and members of the society.<sup>6</sup> There are few studies on patient safety in home care, and most studies have addressed the concept of patient safety in hospitals.

The WHO defines patient safety as 'preventing errors and side effects of healthcare for patients'.<sup>7 8</sup> A number of studies have defined patient safety in the hospital as the 'prevention of medical errors and their adverse effects, the protection of patients against injury and the joint efforts of individual healthcare providers with a robust and integrated care system'.<sup>9 10</sup> A study has defined patient safety in primary care as 'the



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<sup>1</sup>School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, Iran  
<sup>2</sup>Nursing and Midwifery Care Research Center, School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, Iran

### Correspondence to

Professor Tahereh Najafi Ghezjeljeh\*; najafi.t@iums.ac.ir



knowledge of injury relief.<sup>11</sup> Since part of home care depends on the patient and the family in addition to the nurse, it is believed that the patient's safety should be investigated from the perspective of these people.<sup>12 13</sup> Patient safety at home also depends on environmental factors at home.<sup>13</sup> So, given the complexity of the concept of patient safety at home, the issue of patient safety in home care has its own complexity.<sup>14</sup> In the field of nursing care at home, there is still no precise definition of the concept of patient safety in home care, and this concept is not well known in the field of nursing care.<sup>15</sup> Still, there are gaps in the description and identification of this concept, and the exact attributes, antecedents and consequences of the patient safety are not known. Regardless of the few new studies on this concept in the field of nursing, especially in the cultural context of the country, this concept should be inspected for its transparency through in-depth study of the available evidence and the opinion of people involved in this care. For this purpose, the present study was conducted aimed to analyse patient safety in home care in Iran. The guiding philosophy of the researcher is a non-empirical and naturalistic approach.

## METHOD

The hybrid model developed by Schwartz-Barcott was used to analyse the concept of 'patient safety in home care'. The hybrid model is a method of conceptualisation and concept development. In the hybrid concept analysis method, a unique concept is explored through a theoretical stage (collecting data from texts), field work (collecting the participants' data) and a final analysis stage. This analysis is used for developing concepts, which have no clear definition. The advantage this method has over other methods is studying the texts along with collecting the participants' experience on the field. Developing a concept through this method combines inductive and deductive approaches and therefore is able to refine common concepts, which have no clear definition. The reason why this method was used in this study was that explaining the participants' views along with a review of the literature would lead to a better understanding of the concept of patient safety in home care. These three stages are going to be explained in the following sections.<sup>16</sup>

### Theoretical phase

The theoretical phase is to create a suitable platform for an in-depth analysis of the concept in the Field work phases. In this phase, a definition is provided that prepares the researcher to enter the stage of work in the field.<sup>17 18</sup> In this phase, we searched valid databases including MEDLIN and CINHALL; electronic sources including Web of Science, Scopus, Ovid, ProQuest and PubMed and Persian databases including Magiran, IranDoc and SID using these keywords: 'Patient Safety, Safety, Home Care Service, Domiciliary Care, Home Care, Home Health Care'. Inclusion criteria included articles related to the concept of patient's safety in home

care, written in English during 2008–2022, the full text of the articles was available and the keywords were included in the title or abstract. Exclusion criteria included non-English and repeated articles. A total of 450 articles were obtained. By reviewing the titles, abstracts and keywords of the articles, and after excluding the repeated and irrelevant articles, 107 articles were selected. Ambiguity about having inclusion criteria for review was checked by the research team. A total of 31 articles addressed the concept. Finally, the full text of the articles was reviewed and 16 articles corresponding to the subject were selected as the main articles for content analysis. The studies are presented in [table 1](#). The articles were reviewed and coded by two researchers of the team (SKS and ZAMK) independently. The codes were then compared and were similar in most sections. The ambiguity was checked and resolved by the research team. The codes derived from the concepts in the articles were categorised until the patient safety attributes, antecedents and consequences at home were thoroughly reviewed and a summary of each was obtained.

### Field work phase

In this phase, the content analysis method proposed by Graneheim and Lundman was used. Face-to-face interviews were conducted with the participants, then the data were analysed using the qualitative content analysis method.<sup>19</sup> The qualitative question of the research was to investigate the experiences of members involved in home care (nurse, family and patient) regarding the concept of patient safety in home care.

In this phase, to select people with sufficient experience and maximum demographic diversity, using purposive sampling method, we referred to home care centres in Tehran and based on the objective of the study, 12 interviews were conducted with: 2 nurses, 1 supervisor, 3 patients and 3 family caregivers (additional interviews were conducted with participants number 1, 4 and 8 two times). The attributes of the participants are presented in [table 2](#).

The interviews began with a small number of open-ended questions about patient safety and experiences. In-depth interviews continued until data saturation was reached. The interviews lasted 30–45 min. The interviews were conducted in one of the rooms of the home care centre or at the patient's home based on the willingness of the participant. Some interview questions were 'What is your definition of patient safety in home care?', 'What are the dimensions and aspects of patient safety in home care?' and 'Say the things that come to mind when you hear about the concept of patient safety in home care'. Based on the participants' answers, more questions were asked and they were asked to answer questions to clarify their statements. Almost all of the interviews ended with the question 'Is there a question that comes to your mind but I did not ask?' In most cases, this would make the concepts clearer. For data analysis, the conventional content analysis was used based on the

**Table 1** Studies on the concept of patient safety in home care, attributes, antecedents and consequences

References	Country	Studied context	Attribute	Antecedent	Consequence
Lang <i>et al</i> <sup>22</sup>	Canada	Discovering a broad perspective of patient safety in home care	Efforts to reduce and avoid errors and risks Management of unsafe actions Inseparable relationship between the client/family and caregivers/service provider Multidimensionality of safety (physical, emotional, social, functional) Need for human resource competence	Patient and caregiver adherence to patient safety Fitting organisational safety culture Providing infrastructure for safety indicators	Protection and reducing risks Providing a safe environment for the patient Improving the quality of home care Empowering the patient Receiving positive feedback from patients and caregivers
Gershon <i>et al</i> <sup>26</sup>	USA	Risks of home care	Complexity of multiple and potential safety threats Multiple sources of potential home hazards for patients and healthcare workers Control and elimination of known hazards to achieve an acceptable level of safety for the patient and health staff	Attributes of the organisation (safety training) Attributes of home (environmental hazards) Personal attributes (patient and health staff)	Controlling and eliminating hazards in homes: achieving the highest safety standards Maintaining the safety of health workers
Gershon <i>et al</i> <sup>27</sup>	USA	Assessing the potential health and safety risks associated with home healthcare	Identifying hazards and threats Training caregivers Competence of caregivers Identifying the possibility of danger	Principles of working with patient electrical appliances Considering the possibility of fire No slippery carpets Home hygiene conditions Non-violence and abuse Role of technology and equipment in safety	No injury to the patient Optimum quality of care Treating the patient nicely No patient falling Resolving safety problems
Lang <i>et al</i> <sup>33</sup>	Canada	Safety perspectives on home care from the perspective of those involved in care (family, patient, caregiver)	Multidimensional safety standards Complexity of home care safety Difference in the meaning of safety between the views of the patient, family and service provider Participatory role of members involved in care	Coordinating the views of the care provider and recipient Sufficient resources for safety management Family adherence to safety	Providing safe care Reducing safety risks and problems Maintaining the health of the patient Reducing stress and pressure on patients' families
Berland <i>et al</i> <sup>25</sup>	Norway	Culture of patient safety in home care	Accepting patient safety responsibility in different situations Identifying higher hazards and alerts Safety culture	Work spirit and ethics Documentation Functional leadership Principles of working with equipment Competence of caregivers Providing facilities	Assurance of safety
Gershon <i>et al</i> <sup>28</sup>	USA	Develop a checklist on patient safety in home care	Continuous identification and review of environmental conditions and hazards in the home	Knowledge of identifying environmental risk factors High cost to eliminate environmental hazards Commitment	Providing a safe environmental condition for the patient Improving safety
Berland <i>et al</i> <sup>29</sup>	Norway	Patient safety from the perspective of home care nurses	Paying attention to primary prevention and investigating the causes of the accident before it occurs Prevention	Focusing on prevention Nurses' concern for safety	Preventing the patient from falling
Tong <i>et al</i> <sup>27</sup>	Canada	Patients' and families' concerns about safety in home care	Efforts by all involved in care to maintain safety Prevention with timely evaluation and intervention Participation of all members in safety	Concerns and safety concerns High cost to eliminate hazards and supply equipment	Turning the house into a place of safe long-term care Increasing the ability of the family and the patient Reducing the pressure on caregivers
Carpenter <i>et al</i> <sup>31</sup>	USA	Patient safety in home care	Multidimensional safety Physical safety Emotional safety Social safety Functional safety	Commitment to safety principles Controlling environmental hazards Centre and insurance support Proper use of technology and equipment Observance of relevant regulations and standards	Implementing a promising approach to patient safety Promoting safer care

Continued



**Table 1** Continued

References	Country	Studied context	Attribute	Antecedent	Consequence
Danielsen <i>et al.</i> <sup>34</sup>	Norway	Experiences and challenges of nurses and physicians on palliative home care	Cooperation of all members involved in care Competence of caregivers Cooperation and agreement between the nurse and the doctor and the family Competence of nurses Prevention Clinical specialisation and high experience of the nurse Ability to prevent and flexibility in the nurse	Adherence to and trust in safety principles Use of electronic communications Initial planning and preparation before the patient's arrival Easy and fast access to medicine and equipment Support and interaction between home care and hospital Receiving complete patient records from the hospital	Quality care Avoiding hospitalisation Reducing the burden of caring for the family Increasing patient safety
Ree and Wiig <sup>39</sup>	Norway	Employees' perception of patient safety culture	Patient safety culture: product of values, attitudes, perceptions, competencies and individual and group behavioural patterns determining the commitment, style and skills of managing the safety and health of the organisation	Addressing the patient's safety culture and understanding it Management support Organisational Learning Team work Assignment General understanding of patient safety Open communication Higher expectations	Improving patient safety Reducing mortality Reducing disability in the patient
Demiris <i>et al.</i> <sup>30</sup>	USA	Managing promotion of patient safety in home care	Multidimensional environmental safety at home Dimensions of patient safety: environmental, emotional, social, functional safety Patient cooperation Significant patient and family participation in care	Adherence and implementation of safe care Complex clinical care planning and coordination Patient resilience and self-efficacy Material and spiritual support of family and society Use of information technology to facilitate safety	Protection of patient safety Improving healthcare processes Empowering home care patients and their families in care
Johammessen <i>et al.</i> <sup>38</sup>	Norway	Challenges of safety in home care	Coordination in organisational structure and policies Safety culture Competence and participation Understand the culture of error Maintaining competence among employees Knowledge transfer	Changing the views of managers Role of the organisation Maintaining the competence of employees High time and cost	Persistence in safety Continuity of quality of care Maintaining patient safety Reducing the workload of nurses Increasing the ability of nurses
Stokke <i>et al.</i> <sup>36</sup>	Norway	Providing remote patient safety	Relationship between care staff, patients and family Interaction between patient, family and care provider	Efforts and alignment of people involved in technology care Responsibility in technology Coordination of activities with technology	Maintaining patient safety Reducing the pressure on care providers
Mirjam <i>et al.</i> <sup>35</sup>	Sweden	Safety in home care	Safety dependence on family and their participation Cooperation	Family competence Available resources	Maintaining safety Empowering families to care

**Table 2** Attributes of participants in the field work phase: nurse, family caregiver and patient

No.	Participant	Age (year)	Gender	Education	Duration of participation in home care
1	Nurse	31	Male	B.S	10 years
2	Nurse	35	Female	B.S	7 years
3	Nurse (supervisor)	31	Male	M.S	15 years
4	Family (wife of patient)	56	Female	B.S	3 years
5	Family (brother of patient)	46	Male	M.A	6 months
6	Family (husband of patient)	78	Male	B.A	2 years
7	Patient	51	Male	B.A	1 year
8	Patient	61	Female	Diploma	2 years
9	Patient	71	Male	B.A	1.5 years

B.A, bachelor of arts; B.S, bachelor of science; Supervisor, Home care nursing manager.

process proposed by Graneheim and Lundman.<sup>19</sup> For this purpose, the interviews were transcribed with field notes after being recorded. The text of the interviews and field notes were reviewed and read several times. The initial codes were extracted and classified based on similarities and differences. Then, categories and subcategories were extracted. Finally, the attributes, antecedents and consequences of the concept of patient safety in home care were identified. The MAXQDA software V.10 was used for data management.

### Accuracy and trustworthiness of data

In this study, Lincoln and Guba's criteria (credibility, dependability, confirmability and transferability) were used for data accuracy and trustworthiness.<sup>20</sup> For credibility, the researcher was involved with the research data for a long time and was present in the environment. The text of the interviews and the extracted codes and subcategories were provided to some participants and two nurses with a Ph.D. and their opinions were used. The data collection triangulation (interviews and field notes) was used and finally diversity in terms of age, gender and education was considered for sample size. For dependability, an audit trail familiar with qualitative study and clinical setting was used for data review with agreed the work process and results. For confirmability, the researcher attempted to keep documents of different phases of research. For transferability, the researcher attempted to provide attributes of participants, the sampling method and time and place of data collection in detail.

### Final analysis phase

The objective of this phase is to compare and review the results of interviews and texts to achieve the final result of the analysis.<sup>17 18</sup> In this phase, a general analysis of the combination of the two previous phases was performed. The extracted codes were compared in the theoretical and the field work phases, and then a comprehensive definition of the concept of patient safety in home care was provided.

## RESULTS

### Results of the theoretical phase

#### Definitions of the concept of patient safety in home care

The term 'safety' has been used in various fields, including sociology, business management, healthcare and nursing. In Webster's dictionary, safety is defined as 'freedom from danger or harm: the state of being safe'.<sup>21</sup> In addition, according to the Oxford Dictionary, safety is defined as 'the state of being safe and protected from danger or harm'.<sup>22</sup> In Longman's dictionary, safety is defined as 'what is safe: not in danger of being harmed'.<sup>23</sup> According to the definition of the WHO, patient safety means the absence of preventable injuries to the patient during the healthcare process and the reduction in the risk of unnecessary injuries related to healthcare to a minimum acceptable.<sup>8</sup>

According to literature review, patient safety in home care includes the provision of conditions in healthcare through the prevention, reduction, reporting and analysis of environmental and care errors (often associated with side effects), leading to the patient's health.<sup>24</sup> According to another definition, patient safety in home care is predicting and preventing injuries or accidents caused by healthcare processes.<sup>25</sup> Patient safety is a purposeful and systematic process in which known risks are controlled and eliminated in order to achieve an acceptable level of safety for patients and caregivers including nurses.<sup>25 26</sup> Some studies considered patient safety as evaluating the existing risks,<sup>25 27</sup> designing a risk identification checklist and preventing the risks accordingly.<sup>28</sup> In other words, evaluation is accompanied by prevention of the main concepts in the concept of patient safety.<sup>29</sup>

Many studies have mentioned that patient safety is not a one-dimensional concept and is composed of various dimensions such as physical, emotional, social and functional safety, which depend on the competence of caregivers.<sup>30–32</sup> Other studies defined patient safety as a complex and multidimensional process and mentioned the participatory role of family members and environmental conditions in patient safety.<sup>28 33</sup> The concept of

**Table 3** Attributes related to the concept of patient safety in home care

Categories of attributes of the concept	Subcategories of attributes of the concept	Some concepts obtained from studies
Evaluative and preventive process	Identifying environmental hazards Identifying patient threats Continuous risk assessment Risk prevention and control	Gershon <i>et al</i> <sup>28</sup> identified patient safety in home care and considered it as a continuous identification of the conditions and risks in the home Gershon <i>et al</i> <sup>26</sup> considered identification of patient threats at home as a key attribute Tong <i>et al</i> <sup>37</sup> referred to the concept of prevention and assessment with timely intervention for safety
Multidimensional and complex process	Physical dimension Emotional dimension Social dimension Functional dimension	Lang <i>et al</i> <sup>32</sup> in their results emphasised the multidimensionality of the concept of physical, emotional, social and functional safety Demiris <i>et al</i> <sup>30</sup> in their study emphasised the multidimensionality of safety at home physically, emotionally and environmentally
Participatory care	Family participation Nurse participation Patient participation Relationship between involved members	Lang <i>et al</i> <sup>32</sup> stated that patients played an essential role in self-care and therefore should be part of the patient's safety discourse Lang <i>et al</i> <sup>32</sup> mentioned that healthcare providers should involve clients, families and caregivers in deciding the type, amount and time of home care required to provide appropriate and responsive care Mirjam <i>et al</i> <sup>35</sup> mentioned that the safety performance of home care services depends on the closest family members to the elderly
Culture of patient safety in home care	Safety training and learning Understanding of safety Showing safety behaviour Competence of caregivers	Berland <i>et al</i> <sup>29</sup> referred to culture of patient safety in home care as the existence of care routines, updating procedures and knowledge and training among healthcare workers and implementation in care Ree and Wiig <sup>39</sup> considered culture of patient safety as the product of values, attitudes, perceptions, competencies and patterns of individual and group behaviour Gershon <i>et al</i> <sup>28</sup> considered training home healthcare professionals to increase their knowledge and skills for home care Lang <i>et al</i> <sup>32</sup> mentioned human resource challenges and competency as key issues for home care safety

patient safety is a communication process between all members involved in care (nurse, family and patient).<sup>32</sup> The cooperation of members involved in care is one of the main components of defining patient safety at home.<sup>34</sup> Patient safety depends on family involvement and the relationship between members involved in care.<sup>35 36</sup> In some definitions, patient safety at home is defined as prevention by evaluating and intervening in a timely manner, provided that all those involved in home care attempt to maintain safety.<sup>27 37</sup> Patient safety culture is a valuable part of patient safety, which is the product of the values, attitudes, perceptions and competencies of people involved in home care. Also, safety management skills ensure patient's health.<sup>38 39</sup> Commitment to the culture of safety and the competence of caregivers (nurse and family) are important parts of the concept of patient safety.<sup>25</sup>

#### Attributes of patient safety in home care

By reviewing the literature and the content analysis conducted on it, five categories of attributes of patient safety in home care were extracted, including evaluative and preventive process,<sup>25–29 32 34 37</sup> multidimensional and complex process,<sup>26 30–33</sup> participatory care<sup>30 32–37</sup> and patient safety culture<sup>25 27 32 34 38 39</sup> in home care. The categories and subcategories obtained from this phase

are listed in [table 3](#) along with some concepts from the studies.

#### Antecedents of patient safety in home care

Antecedents or factors that occur before the concept of patient safety in home care included the commitment of members involved in safety care,<sup>30–34 36 39</sup> the provision of infrastructure and controlled environmental conditions,<sup>26–28 31 32 37</sup> support of the centre, insurance and hospital,<sup>31 34 38 39</sup> provision of sufficient resources and technological equipment and proper use of them,<sup>25 27 30 31 33 34 36 37</sup> prior planning,<sup>30 34</sup> competence of care providers<sup>25 26 28 30 33 34 36–39</sup> and patient self-efficacy.<sup>26 30 33</sup> ([table 3](#)).

#### Consequences of patient safety in home care

According to text analysis in the theoretical phase, the consequences of this concept include increasing the ability of all members involved in care,<sup>30 32 35 37–39</sup> maintaining environmental safety,<sup>26 28 32 33 37</sup> reducing injury, death and injury to the patient,<sup>27 29 34 40</sup> ensuring the safety of the patient and other members,<sup>13 25 26 28 30 32 35 36 38 39</sup> reducing stress and pressure on all members involved in care<sup>33 34 36–38</sup> and quality and safe care.<sup>26 27 30–34 37 38</sup> More details are given in [table 1](#).

## Results of the work at the field phase

The results of this phase included 6 categories and 29 subcategories (table 4). The categories obtained are described below.

### Risk assessment and prevention

Most of the study participants mentioned risk assessment and prevention. Participants first identified the risk, then assessed the severity of the risk and prioritised prevention based on the risk.

### Team-participatory care

Caring alone at home is very challenging for the nurse. Resolving this challenge requires the cooperation and participation of all members involved in care inside and outside of the home. Patient safety at home requires the cooperation of the nurse, family and patient with each other inside the home, as well as the care centre and the insurance organisation outside the home.

### Safety culture

One of the concepts acknowledged by the study participants was patient safety culture at home. Team learning alongside culture of teamwork can give meaning to the concept of patient safety at home. There should be a common understanding of safety so that patient safety can be given meaning in the organisation with positive feedback and non-punitive response to error. Healthcare providers, including nurses, should be highly qualified to resolve many challenges at home and maintain patient safety.

### Multidimensional safety

The concept of patient safety is a multidimensional concept that is influenced by several factors. The factors mentioned by the participants included environmental safety, equipment safety, drug safety, mental safety, economic safety and body and soul safety.

### Antecedents of safe patient care

Commitment of the members, sufficient resources and their proper use, controlled environmental conditions, support of the affiliated centres (centre, hospital and the insurance), competence of care providers and patient self-efficacy were among the categories mentioned by the participants during the interviews.

### Consequences of patient safety in home care

Maintaining the safety and comfort of the patient, family and the nurse as well as improving the patient health are among the results and benefits that are obtained from implementing the concept of patient safety in home care.

### Final analysis

The results of the field work phase confirmed the results of the theoretical phase. Most of the themes and categories obtained from the texts were confirmed and repeated in the field work phase. According to the results of the

two first phases that is, theoretical and field work phases, the final definition of the concept is as follows.

Patient safety in home care is a multifaceted concept, which encompasses physical, mental, social and practical dimensions. Evaluation, prevention, participation and commitment to the safety culture are the core features of this concept. The patient care concept depends on the commitment of the involved participants, adequate resources, environmental conditions, support of the involved centres (home care agency, hospital, and the insurance), self-efficacy and the ability of the caregivers (nurses). Patient safety at home will not only result in a better and safer care but will also enable the patient, their family and all the people involved (patient, family and the caregivers) to remain calm during the care.

## DISCUSSION

Following the achievement of the important objective of the present study, which was an analysis of the concept of patient's safety in home care and the identification of its attributes, antecedents and consequences in Iran, the analysis of the field work phase confirmed the results of the theoretical phase. Comparison of the results of the theoretical and field work phases showed many similarities between other studies and the study results obtained in Iran. The study results in the field work phase showed that the concept of patient safety in home care has various and multidimensional aspects. Also, the literature review in the theoretical phase indicated that patient safety in home care is a complex and multidimensional concept (physical, emotional, social and functional).<sup>26 30–33</sup> Due to the multidimensionality of patient safety in home care, in order to achieve this objective, safety problems should be investigated from different aspects.<sup>13</sup> According to our results in both phases, it can be concluded that the complexity and multidimensionality of the concept of patient safety in home care is more strongly supported and the home is a high-risk place to provide care. All members involved in home care should pay attention to, assess and monitor the patient's safety in a multidimensional way.

One of the study results in the field work phase was risk assessment and prevention. According to various studies, safety is provided at home when environmental factors are identified and prevented in a timely manner.<sup>41</sup> The home environment has many complex risks for patient safety.<sup>26 31</sup> One of the main and important principles for preventing accidents and maintaining safety is risk assessment and prevention.<sup>28 29</sup> According to the results of the field work phase, home care nurses used their experience and knowledge in this field to assess the risk and then prevented and facilitated these barriers with the participation of the family or the support of the centre and the insurance company. Also, the results of the field work phase showed that team-participatory care in the home care process is one of the basic concepts of patient safety. According to existing

**Table 4** Categories and subcategories obtained from participants' statements regarding the concept of patient safety in home care

Categories	subcategories	Participants' statements
Risk assessment and prevention	Identifying risks Assessing the severity of the risk Risk prevention	<p>NU 2: The home environment is full of hazards. The nurse should be able to quickly identify the hazards in the patient's environment at any time and have a suitable solution for him/her.</p> <p>NU 3: I am always aware of the patient. Whenever something happens to him, I have to identify it before it occurs and find a way to prevent it.</p> <p>FA 5: Some nurses start to look around the patient's bed from the very beginning when they enter our home, and if they see, for example, the bed endangers the patient, they tell me to change it immediately.</p>
Team-participatory care	Family cooperation and participation Nurse cooperation and participation Patient cooperation and participation Home care centre cooperation Insurance cooperation	<p>NU 1: The role and cooperation of the family is very important. If the family does not cooperate, in many places you cannot care, and maintain the patient's safety. On the other hand, you have to cooperate with the family, it is a two-way process.</p> <p>NU 2: Many families take on a lot of work themselves. They are very involved in the work. Because it is not possible single-handedly.</p> <p>FA 6: The center should be able to cooperate with me whenever I cannot provide medicine for the patient and/or medical equipment so that I can keep the patient safe. Insurance should also work with me to approve the patient's prescription.</p> <p>PT 7: I work with my nurse a lot to get well soon. It's important for me to do whatever she says.</p>
Safety culture	Organisational Learning Team work Open communication Non-punitive feedback and response to error Common understanding of the importance of safety	<p>NU 2: Sometimes we have a good supervisor and if I tell him my problem, he provides me with what I need quickly; and I see, for example, the person in charge of the equipment comes quickly and fixes the ventilator. I am comfortable in terms of patient safety in such circumstances.</p> <p>NU 1: I say that nurses should be constantly trained and all of them should always know the importance of safety and what it means and give it priority. The center should regularly hold training classes for safety, similar to a hospital.</p> <p>FA 5: Once I remember the nurse gave a wrong drug to my patient. She begged me not to tell the center because she would be fired. If she talks about her problems to the physician and supervisor, they would tell her what to do and the patient would be safe.</p>
Multidimensional safety	Environmental safety Equipment safety Pharmaceutical safety Psychological safety Economic safety Body and soul safety	<p>NU 3: The first thing that matters to me is the life of the patient and the patient himself. Also, one of my most important principles in patient safety is the patient's peace of mind and communication with him.</p> <p>FA 5: It is very important for the patient to be able to afford it. Sometimes it happens that my patient needs a certain medicine and I cannot buy it because of its high cost.</p> <p>FA 6: The nurse should be able to hold the equipment in a way that it is not damaged. She should train me even how to take care of it so that it is less worn out. On the other hand, the nurse should know how to inject the medicine so that the patient is not harmed.</p> <p>PT 8: I want my bed to be comfortable so that the bed does not bother my back. I should not be in front of the window when the wind blows because I'll catch a cold. My bed should be in a corner so no one hits the oxygen concentrator.</p>
Antecedents of patient safety in home care	Commitment of members Adequate resources and its proper use Controlled environmental conditions Support of affiliated centres (centre, hospital and insurance) Patient self-efficacy Competence of care providers	<p>NU 2: It doesn't matter whether it's me or my family, we should all pay attention to safety. Even the center itself or the hospital with which it has a contract should pay special attention to this issue.</p> <p>NU 3: From the beginning of entering the house, one should pay attention to the environment around the house and control the dangerous environment for safe care.</p> <p>FA 4: My insurance should support me so that I can provide the necessary facilities to my patient.</p> <p>PT 9: I always tell myself that if I want I can do it, I can get better, get up sooner and try to avoid any problems.</p> <p>NU 1: This means that the nurse or the conscientious assistant nurse should always consider ethics. The nurse should be knowledgeable and use the nursing skills well. She should be very up-to-date. On the one hand, she should be able to take care of the home environment and she should manage a seriously ill patient well and control problems.</p> <p>FA 4: Some nurses know how to manage well. Apparently, those who have higher experience are better in this management. I think the knowledge and experience of the nurse is very important.</p> <p>PT 7: The presence of skilled nurses calms me down. Then, I think a good and kind nurse knows how to work. My nurse knows how to work. She is experienced. She treats me patiently.</p> <p>NU2: During the time of Corona, the center should have provided more support and should have provided us with tools and equipment and sufficient personal protective equipment.</p> <p>FA5: It was very difficult to follow the infection control protocols so that the patient would not get corona at home, but we tried our best.</p>
Consequences of patient safety in home care	Maintaining the safety and comfort of the patient Maintaining the safety and comfort of the family Maintaining the safety and comfort of the nurse Patient healthcare improvement	<p>NU 2: My nurse can bring peace and security so that there is no problem for anyone to complain to me about.</p> <p>FA 6: I feel comfortable with my wife, who has no problem, and I feel comfortable with myself.</p> <p>PT 8: It's very important that something happens and then I get better. I want to get well soon.</p>
		FA, family caregiver; NU, nurse; PT, patient.



studies, in addition to the nurse, other main members of the care team are the patient's family centre and the insurance. The participation of family members accelerates the patient's recovery process and reduces the risks to the patient's safety.<sup>42 43</sup> As a result, it can be said that the nurse alone at home cannot guarantee the patient's safety, but other members should be involved in providing care. On the other hand, the position of the family in the Iranian society, especially in patient care, is very valuable<sup>44</sup> and its presence and support in care can ensure patient safety.

The culture of patient safety in home care was one of the important study results in the field work phase. According to the results of the present study, safety culture is one of the important attributes that the participants mentioned. Studies have shown that safety culture should be considered to achieve patient safety in home care.<sup>45</sup> Understanding and valuing the members involved in patient safety care, organisational learning, competence, high spirit and ethics, open communication and team work are the main components of safety culture.<sup>25 39</sup> Safety culture as an attribute of an important field called 'care' can play an effective role in advancing the objectives of the patient safety in home care.<sup>46</sup> The real place of safety culture in the concept studied is very basic and important and special attention should be paid to it.

The commitment of members, sufficient resources and their proper use, controlled environmental conditions, the support of affiliated centres (centre, hospital and the insurance), the competence of care providers and patient self-efficacy were among the categories in the working phase. These categories were frequently seen in the literature review. In general, it can be said that the antecedents of patient safety in home care depend on human factors such as healthcare providers and the centre, the patient's family and himself/herself, environmental factors and the equipment. It seems that these are the main factors of the concept of patient safety. The results of the concept of patient safety in the field work phase showed that the product of implementing the concept of patient safety is the provision of security and comfort for the healthcare providers, the family and the patients. The results of the literature review were similar to these results. In other words, the concept of patient safety guarantees safety and comfort for all members involved in this care. As the dimensions of safety are multiple, so is the benefit to all those involved in the care of the patient, including the patient himself.

The study results can help home healthcare providers, including nurses, patients' families and patients to identify patient safety needs. Healthcare policy-makers as well as home care centres can use the study results to address patient safety problems. For example, home care policy-makers can use this comprehensive and practical definition to identify and design guidelines for identifying risk factors for patient's safety at home.

## Limitations

One of the limitations of this study was conducting the study during the COVID-19 pandemic and the researcher attempted to solve this problem by observing the principles of social distancing.

Another limitation was the lack of available references in this study, which was attempted to be minimised by carefully searching and selecting the most appropriate references.

## CONCLUSION

The study results provide the grounds for further studies on the concept of patient safety in home care in the country. It is suggested that future studies investigate the challenges of implementing safe patient care at home. It is also suggested that the results of the study be used as a basis for the formulation of detailed safety guidelines for home care and the development and implementation of more practical research projects in the field of nursing care at home.

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**Patient and public involvement** Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

**Patient consent for publication** Consent obtained directly from patient(s)

**Ethics approval** This study involves human participants. This study received the code of ethical approval (IR.IUMS. FMD.REC1399.430) from the Iran University of Medical Sciences, Tehran, Iran. In the field work phase, after receiving the code of ethics, the researcher explained the method and the objective of the study to the participants and obtained their informed and written consent. Patients were assured of the confidentiality of the information and transcripts of recorded interviews. The researcher assured the participants that they could leave the study whenever they did not want to continue cooperation.

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**Data availability statement** Data are available upon reasonable request.

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