BMJ Open Quality

Contributing factors involved in the safety of elderly people with chronic illness in home healthcare: a qualitative study

Sahar Keyvanloo Shahrestanaki,[1] Forough Rafii,[2] Mansoureh Ashghali Farahani,[2] Tahereh Najafi Ghezeljeh,[2,3] Zahra Amrollah Majdabadi Kohne[4]

To cite: Keyvanloo Shahrestanaki S, Rafii F, Ashghali Farahani M, *et al*. Contributing factors involved in the safety of elderly people with chronic illness in home healthcare: a qualitative study. *BMJ Open Quality* 2023;**12**:e002335. doi:10.1136/bmjoq-2023-002335

► Additional supplemental material is published online only. To view, please visit the journal online (http://dx.doi.org/10.1136/bmjoq-2023-002335).

Received 2 March 2023
Accepted 24 June 2023

© Author(s) (or their employer(s)) 2023. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

For numbered affiliations see end of article.

Correspondence to
Professor Mansoureh Ashghali Farahani; Farahani.ma@iums.ac.ir

Professor Tahereh Najafi Ghezeljeh; najafi.t@iums.ac.ir

ABSTRACT

Introduction Patients receiving home care are often elderly people with chronic illnesses that increasingly experience patient safety barriers due to special care needs.

Objective The present study was conducted to determine the factors involved in the safety of elderly patients with chronic illnesses receiving home care.

Methods A qualitative study with a conventional content analysis method was conducted in home care agencies of Tehran, Iran from August 2020 to July 2022. For data generation, semistructured interviews were conducted with 11 nurses, 2 nurse assistants, 1 home care inspector (an expert working at the deputy of treatment) and 3 family caregivers. Moreover, four observational sessions were also held. Data analysis was done using the five-step Graneheim and Lundman method.

Results According to the results, the facilitators of the safety of the elderly patients with chronic illnesses included the family's participation, nurse's competence, efficiency of the home care agency management and patient's participation in patient safety. The barriers to patient safety included problems created by the family, nurse's incompetence, inefficiency of the home care agency, patient's prevention of patient safety, home care setting limitations and health system limitations.

Conclusion The majority of the factors involved in the safety of elderly patients with chronic diseases receiving home care had dual roles and could serve as a double-edged sword to guarantee or hinder patient safety. Identification of the facilitators and barriers can assist nurses and the healthcare system in planning and implementing patient safety improvement programmes for elderly patients with chronic illnesses.

WHAT IS ALREADY KNOWN ON THIS TOPIC?

⇒ The available studies have paid less attention to a comprehensive evaluation of factors involved in patient safety in home health care. Understanding the people's experiences of factors involved in patient safety in the context of home health care can provide valuable data to identify the risks and overcoming them in nursing care.

WHAT THIS STUDY ADDS?

⇒ The present study was conducted to extract the patient safety facilitators and barriers in home health care. Modification and reduction of the barriers can be achieved through assessing these factors and preventing them in the home environment.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY?

⇒ Through identifying these factors, the home care agencies managers and policymakers can determine patient safety barriers, address them properly, and take corrective steps to improve their performance.

INTRODUCTION

Today, people have a higher chance of living beyond 60 years of age across the world due to increased life expectancy and reduced mortality. The old age is a threat to a person's health and independence. Elderly people experience many chronic problems, which imposes heavy financial burdens on the families and healthcare systems.[1] For this reason, the policies have shifted towards home care for the elderly people with chronic illnesses in most countries.[2] The rate of receiving home care services in European countries increased from 17% in 1980 to 22% in 2004.[2] On the other hand, this rate is estimated to increase to 32% by 2030.[3] Home care services has been a great help to elderly patients with chronic illnesses receiving long-term care through cost reduction.[3] Today, due to an increase in the elderly people and chronic conditions, the utilisation rate of these services has increased markedly[4] so that one in every five families requiring assistance due to long-term problems receive home care in European countries.[5] Iran is not an exception, and the number of home care agencies has grown noticeably in recent years.[4] These centres offer home healthcare after confirmation of the treating physician

BMJ Open Qual: first published as 10.1136/bmjoq-2023-002335 on 14 July 2023. Downloaded from http://bmjopenquality.bmj.com/ on April 28, 2024 by guest. Protected by copyright.

and agreement of the family[5] under the supervision of medical universities.[2]

Due to economic reasons, there is an increasing interest in home healthcare among elderly people and patients with chronic conditions.[6] The complexity of the situation and lengthy nature of care are associated with many safety risks for these patients.[7] On the other hand, home healthcare may lead to different safety challenges since the home environment is organised for living, not providing healthcare.[7] No accurate statistics are available on the error rate in home care.[6] It has been reported that the rate of early readmission after initiation of home healthcare is high, and four out of seven patients receiving home care are readmitted.[8] Furthermore, the elderly people and chronic patients are at risk of falls, medication error, infection, nutritional problems, environmental hazards and financial and emotional problems.[6] Patient safety challenges at home are influenced by a broad spectrum of factors,[9] which vary across cultures and from one home to another.[10] Some studies found that members involved in home healthcare such as the patients, family caregivers and home healthcare nurses have a significant role in patient safety.[11] Providing continuous care to the patients usually exposes family caregivers to serious problems including physical, mental and social problems,[12] fatigue resulting from prolonged care[13] and financial problems.[13] The family caregivers' exposure to these problems leads to multiple patient safety challenges. Some studies found that the family caregivers' interaction with nurses and their participation in the care process could affect the patient safety.[14] The nurses, as the principal home caregiver, should be able to use their abilities to provide safe and high-quality home healthcare.[15] However, their exposure to numerous problems in the home environment, which is not designed for care, causes several patient safety problems.[16] It seems that the patients can be involved and participate in their own safety,[15] especially elderly patients with chronic illnesses that require more complex care.[17] In addition to human factors, entering a new environment that is not designed for care may be associated with numerous challenges and risks for the patients.[18] Therefore, it can be stated that the patient safety process depends on several factors.[19] The majority of the studies have addressed the factors threatening patient safety in the hospital and very few studies have evaluated these factors in home healthcare.[6] Many studies have emphasised the need for further research in this regard.[6]

The available studies have paid less attention to a comprehensive evaluation of factors involved in patient safety in home healthcare, especially human and environmental factors. On the other hand, the factors involved in patient safety are affected by cultural and social factors in the Iranian society due to the close relationship of the family members and the important role of the family in this culture.[20] Home care nurses have a close relationship with the family members and patients; therefore, it seems that factors involved in safety may be affected by the social structure and family traditions.[17] Understanding the people's experiences of factors involved in patient safety in the context of home healthcare can provide valuable data to identify the risks and overcoming them in nursing care. Based on this, the research question 'According to the experiences of the members involved in home care, what factors are involved in the safety of elderly people with chronic diseases?' was formed in the mind of researchers. Therefore, the present study was conducted to determine the factors involved in the safety of elderly people with chronic illnesses in the context of home healthcare using a qualitative approach with a conventional content analysis method. In this method, to explain the phenomenon without imposing predetermined categories or previous theoretical views, information is obtained directly from the study participants.

METHODS

Study design

The present study was conducted using a qualitative approach with a conventional content analysis method (secondary analysis of the data of a large grounded theory study) according to the method proposed by Graneheim and Lundman[21] from August 2020 to July 2022 to improve the existing knowledge about the safety of elderly patients with chronic conditions in home healthcare since this concept was not addressed previously.[6] In this approach, categories are extracted from the data.[21] The study was conducted in three home care agencies affiliated with Tehran University of Medical Sciences,Tehran, Iran. The Consolidated Criteria for Qualitative Research (COREQ) checklist was used in this study (online supplemental file 1).[22]

Sampling

Fifteen interviews were conducted with nine home care nurses, two home care nurse assistants, one home care inspector (an expert working at the deputy of treatment) and three family caregivers (table 1). Moreover, four observational sessions were also held at the homes of the patients receiving home care during which four nurses, four elderly patients with chronic diseases and four family caregivers were observed (table 2). The inclusion criteria in this study included: members involved in home care for elderly patients with chronic diseases, willingness to participate in the study and ability to communicate. Also, the exclusion criteria in this study included: unwillingness to participate in this study at any stage of the research and non-elderly patients with acute conditions.

The participants were selected using purposive sampling with maximum variation from nurses with at least 1 year of experience as a home nurse care. In addition to selecting participants with maximum variation, the research also used theoretical sampling whenever needed. It was tried to include participants that were experienced in home healthcare and were interested in joining the study. To achieve maximum variation, subjects with differences

BMJ Open Qual: first published as 10.1136/bmjoq-2023-002335 on 14 July 2023. Downloaded from http://bmjopenquality.bmj.com/ on April 28, 2024 by guest. Protected by copyright.

Table 1 Demographic characteristics of participants (interviews)

Row	Participant	Marital status	Education	Home care experience
1*	Nurse	Married	B.Sc.	20 years
2*	Nurse	Married	M.Sc.	10 years
3*	Nurse	Single	B.Sc.	8 years
*4	Nurse	Single	B.Sc.	7 years
5	Nurse	Married	B.Sc.	9 years
6*	Nurse (supervisor)	Married	B.Sc.	12 years
7*	Nurse	Married	B.Sc.	5 years
8	Nurse (supervisor)	Married	M.Sc.	20 years
9	Home care inspector (deputy of treatment expert)	Married	B.Sc.	12 years
10	Nurse	Single	B.SC.	2 years
11	Nurse assistant	Single	M.Sc.	6 years
12	Nurse assistant	Married	M.Sc.	2 years
13	Patient's son	Married	M.Sc.	3 months
14	Patient's wife	Single	B.Sc.	3 years
15	Patient's daughter	Single	High school diploma	1 year and 2 months

*Two interviews with the participant: complementary interview.

in terms of age, sex, marital status, education level and home care experience were interviewed. After applying the inclusion criteria and identifying the research objective, the proper time and place for the interviews were determined.

Data collection

In-depth, semistructured (face-to-face) interviews and observation were used to evaluate patient safety in real settings.[23] For this purpose, fifteen in-depth, semistructured interviews (60–90 min) were conducted by the researcher (first author) and four observation sessions (8–11 years) were held at the homes of elderly patients with chronic illnesses. The interviews started with a general open-ended question, and the following questions were asked based on the participants' answers to achieve the study objective. Some of the questions

Table 2 Demographic characteristics of participants (observations)

Row	Setting	Objective	Duration of observation (hours)	Participant	Marital status	Education level	Home care experience
1	Patient's home	Observation of care	12	Nurse	Married	B.Sc.	6 years
				Patient's wife	Married	High school diploma	6 months
				Patient (ALS†)	Married	B.Sc.	6 months
2	Patient's home	Observation of care	8	Nurse	Single	B.Sc.	10 years
				Patient's wife	Married	B.Sc.	9 months
				Patient (CVA*)	Married	B.Sc.	9 months
3	Patient's home	Observation of care and error	12	Nurse	Married	B.Sc.	11 years
				Patient's son	Married	B.Sc.	1 month
				Patient (cancer)	Married	High school diploma	1 month
4	Transfer from hospital to home-patient's home	Observation of care and patient transfer from hospital to home	9	Nurse	Single	M.Sc.	18 years
				Patient's daughter	Married	M.Sc.	1 year
				Patient (diabetes, ALS†)	Married	B.Sc.	1 year

*Cerebro Vascular accident
†Amyotrophic lateral sclerosis

BMJ Open Qual: first published as 10.1136/bmjoq-2023-002335 on 14 July 2023. Downloaded from http://bmjopenquality.bmj.com/ on April 28, 2024 by guest. Protected by copyright.

used in the interviews were as follows: 'According to your experience, what things facilitate or threaten the safety of patients at home?'. All interviews were ended with the question 'Are there any items that I did not ask and you wish to add?' (online supplemental file 2). The location for face-to-face interviews was selected at the discretion of the participants (home care agency or patient's home). To improve the accuracy of the interviews and resolve ambiguities, participants 1, 2, 3, 4, 6 and 7 were interviews twice. The researcher let the participants express the opinions freely and did not force or induce her opinion during the interviews. All interviews were recorded with permission and then transcribed verbatim. The comment command of the Microsoft Word software was used for data management. No new data were obtained from participant 12 onward, and it seemed that all concepts were adequately addressed. Then, three more interviews were conducted to ensure data saturation was achieved, and the data were categorised. The observation method (observer as participant) was also used in the present study (table 2) to evaluate patient care in a real setting.[16] Four observation sessions were held to observe important occurrences including the care method and the interactions of people involved in the care process, the researcher's interpretation of the observations was recorded at an appropriate time.[24] To encourage the participants' interaction, the method of 'observer as participant' was used and the researcher took part in some of the care activities (training the patient and family members, vital signs monitoring and assistance in patient's position change.[24] During the observations, the questions that occurred to the researcher were asked as open-ended questions and notes were taken at an appropriate time.[25]

Data analysis

Data analysis was done simultaneously with data collection with a conventional content analysis approach using the five steps proposed by Graneheim and Lundman including transcribing the interviews verbatim, reading through the scripts several times to obtain a general understanding, determining and coding the meaning units, categorising the primary codes into larger categories and determining the subjects of the categories.[21] The interview and observations were transcribed immediately. The transcripts were read through several times to ensure the researcher's immersion in the data. The words, sentences and paragraphs related to the study objective were considered as meaning units. The meaning units were coded using the participants' words or appropriate labels extracted from the data. The codes were constantly evaluated, analysed and compared with each other regarding their similarities and differences, and codes with conceptual similarities were grouped into categories. The categories were also compared with each other and grouped into main categories based on their conceptual similarity.

Trustworthiness

The criteria proposed by Guba and Lincoln (1985), including credibility, transferability, dependability and confirmability are used to assess the rigour of qualitative studies. In order to achieve credibility, the following were done: spending a long time on data collection, using observations and interviews for data collection (triangulation), conducting complementary interviews, using member checking (controlling the extracted categories by participants). To confirm the dependability and confirmability of the findings: storing the audio files and transcripts of the interviews, field notes, reminders, codes, categories and stories in a safe and confidential place, supervision over all stages by an advisor and a supervisor, auditing by two external reviewers (qualitative research experts) were done. To ensure transferability: observation, thick description of the study and its stages were done. And to improve authenticity and reflexivity, the researcher tried to disregard their assumptions regarding the factors involved in the safety of elderly patients with chronic illness in home healthcare and minimise bias through self-awareness about the assumptions.[26]

Ethical considerations

This study received ethical clearance from Iran University of Medical Sciences (IR.IUMS.FMD.REC1399.430). The participants partook in the study voluntarily after receiving verbal information about the study objectives. Informed consent was obtained from all participants before the interviews and observations. The participants were informed of the recording of interviews and confidentiality of the data and were assured that they could leave the study at any time during the study.

RESULTS

The findings included 2 main categories, 10 subcategories and 24 primary categories (table 3). The main categories were: (1) Patient safety facilitators: 'family's participation', 'nurse's competence', 'efficiency of home care agency' and 'patient's participation in patient safety' and (2) Patient safety barriers: 'problems created by the family', 'nurse's incompetence', 'inefficiency of the home care agency', 'patient's prevention of patient safety', 'home care setting limitations' and 'health system limitations'.

Patient safety facilitators in home healthcare

Family's participation

The family is one of the most important components of home care. The participants believed that the family's participation was a very important factor in patient safety. The participants stated that safe cooperation of the families like vigilance and supervision over care, cooperation and provision of the necessary care equipment could improve patient safety. Moreover, the constructive interaction of the family with the nurse and patient can facilitate patient safety in home care.

BMJ Open Qual: first published as 10.1136/bmjoq-2023-002335 on 14 July 2023. Downloaded from http://bmjopenquality.bmj.com/ on April 28, 2024 by guest. Protected by copyright.

Table 3 Main categories, subcategories, primary categories and some statements of participants

Main category	Subcategory	Primary category	Participants' statements
Patient safety facilitator	Family's participation	Family's safe cooperation	'Some families pay very close attention to their patients and even remind us of their medication time.' (P1)
			'I always cooperate with the nurses; this makes me believe that may patient recovers sooner this way.' (P13)
		Family's constructive interaction	'Some families have a good relationship with the nurse, because we become a family member at some point, and with the patient so that the nurse can give them peace and treat them well.' (P4)
	Nurse's competence	Nurse's acquired competence	'Some nurses that attend the patients' needs have a good knowledge and I am sure that they can use their knowledge if something happens.' (P15)
			'When the patient's blood oxygen fell from 98% to 90%, the nurse gave additional oxygen and suctioned the airway immediately.' (O16)
		Nurse's inherent competence	'Some nurses are very responsible, have a good experience, and do not panic.' (P3)
	Efficiency of home care agency	Managers' supportive-guidance system	'The supervisor (nursing manager) is responsible for arranging the team and information sharing. He should be able to establish communication between team members.' (P8)
			'Our supervisor is a very good trainer. He shares new information with us.' (P11)
		Regulations and procedures	'The regulations and procedures should be clear. For example, for teleconsultation or providing a drug, they should coordinate with a hospital, and the hospital should be accountable if necessary.' (P7)
		Coordination of related services	'The agency should be able to manage nurses, equipment, and other issues, and prepare whatever is needed, from consultation to drugs.' (P4)
			'To provide the drugs required for home care, the nurse should contact the agency (supervisor) to provide and send them.' (O16)
	Patient's participation in patient safety	Compliance	'My patient really listens to nurses; for example, even if it is difficult, he tries to remain in the decubitus position to avoid pressure ulcer.' (P14)
		Participation in care	'Some patients cooperate with nurses; for example, when you offer spirometry training as a reward, they appear on time or participate in other care processes actively.' (P7)
Patient safety barriers	Problems created by family	Improper interferences	'Some families read stuff on the Internet and then want to force them on the patients.' (P7)
			'Once a family burned wild rue for a patient with a respiratory problem; well, it makes the patient's condition even worse.' (P2)
			'Some families may endanger the patient's safety, especially in the beginning of home care, because they are inexperienced.' (P5)
		Inefficient interactions	'No matter how many times I tell the family that greasy food is not good for the patient, they won't listen.' (P3)
			'The nurse asked the family to empty the urine bag while she was giving the patient his medication, but his wife refused to do so.' (O19)
		Failure to provide care equipment and necessities	'Well, some families, to reduce the costs, cannot afford a professional nurse and ask us to send them a nurse at a lower cost.' (P6)
			'The families of patients with chronic conditions can tired of providing some drugs or equipment and do not provide them anymore.' (P8)
	Nurse's incompetence	Unprofessional conduct	'Once the nurse gave a wrong medicine to the patient. She neither told us nor her supervisor and kept it a secret.' (P13)
			'Some of them are not responsible; they just want to finish their shift and go home.' (P14).
		Lack of knowledge and skills	'Some nurses are inexperienced and are not suitable for home care and some of them, even experienced ones, have sometimes forgotten some tasks.' (P9)
			'It seems that some nurses are not well trained or are not very skillful.' (P10)

Continued

BMJ Open Qual: first published as 10.1136/bmjoq-2023-002335 on 14 July 2023. Downloaded from http://bmjopenquality.bmj.com/ on April 28, 2024 by guest. Protected by copyright.

Table 3 Continued

Main category	Subcategory	Primary category	Participants' statements
	Inefficiency of home care agency	Lack of guidance and support from managers	'Once there was a supervisor who could not answer any questions. He could not establish a relationship between us and the doctor.' (P10)
			'When I called the agency and ordered a device, it took a whole shift before they could provide it.' (P12)
		Lack of rules and protocols	'Some agencies where I worked were not very lawful and sometimes violated the regulations, for example, they hired students that had not yet graduated or hired nurses without assessing their competence.' (P10)
			'The agency should not give us heavy shifts because it makes us very tired and jeopardizes the patient's safety.' (P12)
			'When I call the agency and complain about a nurse, they should see into it. I don't know why they don't follow up on complaints. The nurses are not well trained.' (P15)
	Patient's prevention of patient safety	Patient's risky behaviour	'Some patients don't listen to the nurse, for example, you ask them to let you know if they need anything, but then you see they have bent over the edge of the bed to reach something and are about to fall down.' (P10)
		Patient's characteristics	'The elderly people and those with chronic conditions are at a higher risk.' (P11)
			'The patient's dementia became worse around sunset and he started to pull on the IV line, oxygen tubing, etc.' (O18)
	Home care setting limitations	Nurse's limitations	'We are single-handed at home and there is no one to help us. The home environment is very unpredictable. Something might occur and you are all alone. We have long shifts, which makes us very tired.' (P2)
			'We are not authorized to prescribe drugs at home and should call the doctor. Now, where do I find a doctor in the middle of the night? Sometimes we prescribe a drug and tell the doctor later.' (P4)
		Access limitations	'and we needed more oxygen cylinders. It took the agency a long time to get us the cylinder and I was afraid something might happen to my patient.' (P13)
			'If the patient needs an immediate chest X-ray or lab test, it is very difficult at home. Or if the patient needs a certain device. You might not be able to provide all pieces of medical equipment at home.' (P6)
		Situation control limitations	'You should always expect an incident at home, a piece of equipment becomes out of order or the patient's condition becomes worse.' (P8)
	Health system limitations	Restrictions related to pandemic	'During COVID-19, everything became expensive. Some drugs and equipment like oxygen concentrators and oxygen cylinders were very difficult to find.' (P5)
			'I was always afraid that my father, with all these respiratory and chronic problems, might catch COVID-19 and die.' (P15)
		Treatment and drug limitations	'The high inflation rate has bothered families in recent years. It has become difficult to buy drugs and the insurance coverage is weak.' (P6)
		Supervision and inspection weaknesses	'For inspection, we only inspect the agency, not the patients' homes.' (P9)
			'We only evaluate the professional competence documents for the nurses. The agency should inquire about the nurse's university degree.' (P9)
			'Only if a family files a complaint, we follow up and re-inspect the agency.' (P9)

Nurse's competence

The participants believed that the nurses were a main component of patient care and safety management. According to the results, nurses, as one of the parties involved in healthcare, can facilitate patient safety. Nurses can facilitate patient safety through their responsibility, flexibility and work conscience, which are inherent competencies. Moreover, the knowledge and art, skills, experience, vigilance and belief in human values are among acquired competencies of the nurses whose improvement can facilitate patient safety according to participants.

Efficiency of home care agency

The participants believed that the management of the home care agency, as the main institution responsible for coordination and provision of human force and equipment, had a determining role in patient safety. Home care agencies can facilitate patient safety through establishing an efficient supportive-guidance system, formulating regulations and procedures, and coordination of related services.

Patient's participation in patient safety

The participants stated that among people involved in patient care, the patients themselves have an important role in patient safety. The elderly people and chronic patients can maintain their safety through cooperation with the healthcare team, especially nurses. In other words, the patients themselves have a fundamental role in their safety as a person involved in healthcare.

BMJ Open Qual: first published as 10.1136/bmjoq-2023-002335 on 14 July 2023. Downloaded from http://bmjopenquality.bmj.com/ on April 28, 2024 by guest. Protected by copyright.

Patient safety barriers in home healthcare

Problems created by family

The participants stated that some families hindered patient safety through inappropriate interferences, inefficient interactions and not providing care equipment and necessities. The families' interference in patient safety included care interferences (insisting on implementing a certain type of care) or folksy interferences (insisting on administering a traditional treatment). However, the findings indicated that the problems created by families were not deliberate and were rooted in their unfamiliarity with the care process.

Nurse's incompetence

The participants believed that some nurses jeopardised the patient safety with their unprofessional conduct like concealing, being self-centred, lack of commitment to patient safety and ignorance. Moreover, some nurses put patient safety at risk due to lack of knowledge and skills (lack of experience, lack of knowledge about home care).

Inefficiency of home care agency

The participants stated that home care agency could weaken the patient safety due to lack of support and guidance from managers (lack of coordination and supervision, lack of an integrated team and failure to provide training and equipment) and lack of rules and protocols (forcing long shifts on nurses, violating the rules, paying little attention to evaluating the nurses' education degrees). According to the participants, home care agencies play an important role as an intermediary body between the family, patient and nurse, and the patient safety could be jeopardised if this role is not implemented correctly.

Patient's prevention of patient safety

The elderly people and chronic patients may endanger their own safety if they undertake hazardous actions like ignoring the nurse's orders or uncooperativeness due to complexities resulting from chronic conditions or old age such as cognitive deficit.

Home care setting limitations

According to the results, the home environment is not suitable for care and is not designed and organised to serve this purpose in Iran. Therefore, when this environment is used for care, multiple limitations occur such as the nurse's limitations including the nurse being single-handed, being forced to administer a drug without authorisation, errors in drug provision, fatigue resulting from long shifts and receiving doctor's authorisation after administering a drug. Other home limitations included access limitations such as time and location restrictions, limitations in access to specialists, paraclinical limitations like laboratory, radiology facilities and other services, insufficient access to proper equipment and difficulties communicating with the doctor. Moreover, situation control limitations like the unexpectedness of the patient's condition, a risky and unpredictable environment and unexpected interruptions in the function of equipment were other home care setting limitations that served as barriers to patient safety in home healthcare. According to the participants, these factors threatened the patient safety constantly in home healthcare.

Health system limitations

According to the participants, factors threatening patient safety were not limited to the family and home environment, and some of them were related to the healthcare system. When the study was being conducted, most countries, including Iran, faced COVID-19 pandemic and its complications, which had serious effects on the patient safety. For example, the restrictions related to the pandemic like increased costs, shortages, and the high probability of COVID-19 infection in elderly patients with chronic diseases were among the patient safety barriers. Moreover, drug and treatment limitations like a high inflation rate, drug shortages and limited insurance coverage were other barriers. Since the healthcare system should have supervision over home healthcare, this responsibility has been assigned to the deputy of treatment of medical universities, that had a poor performance in this regard according to the results. The absence of a process for evaluating the nurses' academic degree in the higher levels, supervision without follow-up and following up on a case only based on the families' complaints were other barriers to patient safety according to the participants.

DISCUSSION

One of the strengths of the present study was a comprehensive evaluation of the determinants of patient safety in home care. The results showed that the role of the members involved in care (the nurses, family caregivers, patients, and home care agencies) could either improve or threaten patient safety like a double-edged sword. The role of active participation of the family as a team working in close cooperation with the nurse is of great importance.[27] Team-based participatory care involving the nurse and family caregiver has been discussed in many studies.[27] This care is based on the cooperation and participation of the members involved in care, including family caregivers.[28] A constructive cooperation and relationship between the caregivers, nurses and patients in the present study indicated the importance of collaboration and teamwork in patient safety. Some studies have considered the interconnected relationship among the nurse, family and patients as the sides of a triangle.[29] The results of the present study showed that some families threatened the patient safety through interfering in care due to being inexperienced in care or believing in traditional medicine. In Iran, some families believe in the effectiveness of traditional or Islamic medicine and try to accelerate the recovery process through implementing the principles of complementary medicine, and therefore practice folk medicine. The results of the present study showed the practice of folk medicine (without consulting

BMJ Open Qual: first published as 10.1136/bmjoq-2023-002335 on 14 July 2023. Downloaded from http://bmjopenquality.bmj.com/ on April 28, 2024 by guest. Protected by copyright.

with a doctor) by the family and their insisting on complementary medicine. According to the participants, the reason for this interference is that the family believes that they own the house, which affects the care process in home healthcare. This finding was exclusively reported in the present study and no similar study has reported this finding. Moreover, the results showed that due to the chronicity of the disease, some family caregivers became exhausted and refused to participate in the care of their patient or to provide the necessities of care. Moreover, it should be noted that the family caregivers do not receive an official support from the health system for home care, which further adds to the burden of care. Some studies emphasised lack of sympathy and cooperation in some family caregivers.[30] When chronic care is intended, the role of family caregivers becomes more important due to the length of care and complexity of the barrier factors;[31] therefore, training the nurses and their support for the family[32] may have an important role in reducing the barriers and improving the facilitators of patient safety.

Considering the complexity of home care and the risks associated with it, the competence of healthcare providers to offer high-quality and safe care guarantees patient safety. Competence is a multidimensional concept. The results of the present study showed that the inherent and acquired competence of the home care nurses was an important factor in patient safety and lack of these competencies threated the patient safety. Moreover, according to the available evidence, home care nurses, especially those who provide care to elderly patients with chronic conditions that have health complexities, should have competency, which is achieved through continuous education and training,[33] experience[34] and observance of moralities.[34] A lack in all or some of these competencies can compromise patient safety.[35] Finally, it can be stated that assessing the competency level of the home care nurses[36] is an important factor in patient safety to ensure the delivery of high-quality care.

The results showed that home healthcare centres are responsible for establishing and managing an effective relationship between all parties involved in care to maintain and promote patient safety. In fact, it can be argued that these centres engage all parties in care like the links of a chain; on the other hand, an inefficient management can break the links of the chain. According to the evidence, management,[37] coordination,[38] follow-up,[39] supervision,[40] training,[41] recruiting and assembling an efficient team[42] and formulating the rules and procedures[43] to maintain and improve patient safety are among the main principles of home healthcare centres. Considering the above, these centres should try to drive their organisational culture towards patient safety.[44]

The role of the patient both as a healthcare recipient and a member involved in patient safety is of great importance. The present study found that the patients' participation in care and their cooperation with the home healthcare team had a determining role in their own safety. According to the evidence, chronic and elderly people[45] patients are more exposed to health threats due to complexities of care. Therefore, the safety conditions of home healthcare for these patients should be assessed more carefully once they enter the home or even before it.[46]

The results showed that the home environment was not designed for care, which served as a factor for escalation of unexpected and dangerous incidents. According to the present and other studies,[47] adequate equipment and specialists[48] may not be present at home at the same time. The nurses are single-handed and cannot use their friends' assistance for consultation. The results showed that elderly patients with chronic diseases mostly had complex health-related problems and required more equipment and repeated paraclinical procedures. According to the present study and other studies,[49] all pieces of equipment are not readily available at all times. Limited access to paraclinical services like immediate access to laboratory or radiology services was another barrier to patient safety in the present study. Considering the above, it can be argued that the home environment suffers from serious limitations for delivering optimal care, especially for elderly patients with chronic diseases, which should be addressed properly according to the patient's condition before comprising the patient safety.[50 51]

Healthcare system limitations were other barriers to patient safety in home healthcare. During the COVID-19 and with respect to economic challenges, many countries, including Iran, experienced high inflation rates, increased costs and shortages in some equipment. The elderly people with chronic diseases sometimes needed equipment like oxygen concentrators or respiratory devices at home, which created many problems for these patients due to the COVID-19 pandemic. These devices were either unavailable or the insurance companies refused to reimburse the high costs. Insurance coverage limitations aggravated the situation during the COVID-19 pandemic according to the present and other studies.[49] Previous studies reported that the COVID-19 pandemic and its consequences imposed economic limitations on the healthcare systems.[52] However, meticulous supervision over home care agencies should be carried out strictly under any circumstances.[52] The results of the present study showed that the inspectors only inspected home care agencies and did not have a direct supervision over their home care, which created many problems for patient safety. In conclusion, it is necessary to redefine the evaluation indicators of home care agencies[52] based on the needs and modify the safety barriers.

Limitations

This study had several limitations. For example, some nurses, patients and family members were not willing to cooperate; however, the researcher tried to persuade them through explaining the objectives of the study. As another limitation, the study was conducted during the COVID-19 pandemic and the researcher tried to observe social distancing during interviews and observations.

BMJ Open Qual: first published as 10.1136/bmjoq-2023-002335 on 14 July 2023. Downloaded from http://bmjopenquality.bmj.com/ on April 28, 2024 by guest. Protected by copyright.

Moreover, the participants wore facial masks during the interviews, which prevented the researcher from observing their facial expressions.

CONCLUSION

The present study was conducted to extract the patient safety facilitators and barriers in home healthcare. The findings showed that some factors like the family cargivers, patients and home care agencies could facilitate or compromise patient safety like the two plates of a scale. The heavier the facilitator plate, the better the patient safety, and the heavier the barrier plate, the more the threats to patient safety. In fact, facilitators and barriers coexist at all times. It is obvious that it is impossible to eliminate all barriers, and only measures can be taken to modify them. Modification and reduction of the barriers can be achieved through assessing these factors and preventing them in the home environment. Through identifying these factors, the home care agencies managers and policymakers can determine patient safety barriers, address them properly and take corrective steps to improve their performance. According to the results of the present study, it is suggested that patient safety in home healthcare should be integrated into the nursing curriculum in bachelor's and Master's levels as well as their continuous education. Also, by identifying barriers and facilitators in safe care at home, home care nurses can provide appropriate solutions to create safe care for the patient at home.

Ethical approval and consent to participate

The present study was approved by Iran University of Medical Sciences, Tehran, Iran with the ethics code number (IR. IUMS. FMD.REC1399.430). All experimental protocols were approved by the ethics committee/Institutional Review Board of Iran University of Medical Sciences. All methods were performed in accordance with the guidelines and regulations of relevant qualitative studies. All participants were aware of the aim and design of the study. Written informed consent was obtained from all participants prior to the interview or observation. Participants' permission was obtained before recording conversations. They were also assured that their information would be kept confidential and they could withdraw from the study at any time. Due to conducting the study during the COVID-19 pandemic, the researcher tried to observe all the points related to social distancing during the study.

Patient and public involvement statement

Based on the purpose of the study, the participants (home care nurses, home care nurse assistants, home care inspector and family caregivers) participated in this study in the form of face-to-face interviews. The participants shared their experiences in the field of patient safety in home care with the researcher. Also, the participants, including elderly patients with chronic diseases, participated in the observation by the researcher. The participants gave permission to the researcher to observe the patient care process at home. Participants and patients had no role in the design, presentation and preparation of this study.

Author affiliations
[1]School of Nursing and Midwifery, Iran University of Medical Sciences, Tehran, Iran
[2]Professor, Nursing and Midwifery Care Research Center, School of Nursing and Midwifery, Iran University of Medical Science, Tehran, Iran
[3]Professor, Cardiovascular Nursing Research Center, Rajai Cardiovascular Medical and Research Center, Iran University of Medical Sciences, Tehran, Iran
[4]School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran

Acknowledgements The authors would like to express their gratitude to all the participants and people who cooperated in all stages of the study. The present study was conducted in cooperation with Iran University of Medical Sciences. The authors wish to thank the participants and other parties involved in the study.

Contributors SKSh: supervision, investigation, conceptualisation, visualisation, data curation, writing—original draft preparation, software, writing—reviewing and editing. FR: project administration, supervision, conceptualisation, methodology, reviewing and editing. MAF: project administration, supervision, conceptualisation, methodology, writing—reviewing and editing, guaranting accepts full responsibility for the work and/or the conduct of the study, had access to the data, and controlled the decision to publish.TNGh: project administration, supervision, conceptualisation, methodology, writing—reviewing and editing, guaranting accepts full responsibility for the work and/or the conduct of the study, had access to the data, and controlled the decision to publish. ZAMK: investigation, validation, writing—reviewing and editing.

Funding This study was approved and financially supported by the Nursing Research Center of Iran University of Medical Sciences, Tehran, Iran (approval code: 99-2-25-18478).

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Consent obtained from parent(s)/guardian(s).

Ethics approval The Ethics Committee of Iran University of Medical Sciences, Tehran, Iran, approved this study (code: IR. IUMS. FMD.REC1399.430). Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available on reasonable request. The datasets generated and/or analysed during the current study are not publicly available due to ensure privacy of the interviewed stakeholders, but data files in Persian are available from the corresponding author on reasonable request.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: http://creativecommons.org/licenses/by-nc/4.0/.

REFERENCES

1 Dall TM, Gallo PD, Chakrabarti R, *et al*. An aging population and growing disease burden will require alarge and specialized health care workforce by 2025. *Health Affairs* 2013;32:2013–20.

BMJ Open Qual: first published as 10.1136/bmjoq-2023-002335 on 14 July 2023. Downloaded from http://bmjopenquality.bmj.com/ on April 28, 2024 by guest. Protected by copyright.

2 Vandiver T, Anderson T, Boston B, *et al*. Community-based home health programs and chronic disease. *Prof Case Manag* 2018;23:25–31.
3 Fathollahi-Fard AM, Hajiaghaei-Keshteli M, Tavakkoli-Moghaddam R, *et al*. Bi-level programming for home health care supply chain considering outsourcing. *J Ind Inf Integr* 2022;25:100246.
4 Flemming J, Armijo-Olivo S, Dennett L, *et al*. Enhanced home care interventions for community residing adults compared with usual care on health and cost-effectiveness outcomes: a systematic review. *Am J Phys Med Rehabil* 2021;100:906–17.
5 Dostálová V, Bártová A, Bláhová H, *et al*. The experiences and needs of frail older people receiving home health care: a qualitative study. *Int J Older People Nurs* 2022;17:e12418.
6 Carpenter D, Famolaro T, Hassell S, *et al*. *Patient safety in the home: assessment of issues, challenges, and opportunities*. Cambridge, MA: Institute for Healthcare Improvement, 2017.
7 Dumain M, Jaglin P, Wood C, *et al*. Long-term efficacy of a home-care hypnosis program in elderly persons suffering from chronic pain: a 12-month follow-up. *Pain Manag Nurs* 2022;23:330–7.
8 Ma C, Shang J, Miner S, *et al*. The prevalence, reasons, and risk factors for hospital readmissions among home health care patients: a systematic review. *Home Health Care Manag Pract* 2018;30:83–92.
9 Lee J, Suh Y, Kim Y. Multidimensional factors affecting homebound older adults: a systematic review. *J Nurs Scholarsh* 2022;54:169–75.
10 Kianian T, Pakpour V, Zamanzadeh V, *et al*. Cultural factors and social changes affecting home healthcare in Iran: a qualitative study. *Home Health Care Manag Pract* 2022;34:175–83.
11 Knight SW, Trinkle J, Tschannen D. Hospital-to-homecare videoconference handoff: improved communication, coordination of care, and patient/family engagement. *Home Healthc Now* 2019;37:198–207.
12 Hudson P, Payne S. Family caregivers and palliative care: current status and agenda for the future. *J Palliat Med* 2011;14:864–9.
13 Oyesanya TO, Thompson N, Arulselvam K, *et al*. Technology and TBI: perspectives of persons with TBI and their family caregivers on technology solutions to address health, wellness, and safety concerns. *Assist Technol* 2021;33:190–200.
14 Burgdorf JG, Arbaje AI, Chase JA, *et al*. Current practices of family caregiver training during home health care: a qualitative study. *J Am Geriatr Soc* 2022;70:218–27.
15 Murali KP, Kang JA, Bronstein D, *et al*. Measuring palliative care-related knowledge, attitudes, and confidence in home health care Clinicians, patients, and Caregivers: a systematic review. *J Palliat Med* 2022;25:1579–98.
16 Grasmo SG, Liaset IF, Redzovic SE. Home care workers' experiences of work conditions related to their occupational health: a qualitative study. *BMC Health Serv Res* 2021;21:962.
17 Tinetti ME, Costello DM, Naik AD, *et al*. Outcome goals and health care preferences of older adults with multiple chronic conditions. *JAMA Netw Open* 2021;4:e211271.
18 Gershon RR, Pogorzelska M, Qureshi KA, *et al*. Home health care patients and safety hazards in the home: preliminary findings. advances in patient safety: new directions and alternative approaches (vol 1: assessment), NBK43619; 2008.
19 Lang A, Toon L, Cohen SR, *et al*. Client, Caregiver, and provider perspectives of safety in palliative home care: a mixed method design. *Saf Health* 2015;1:1–14.
20 Ghezeljeh TN, Shahrestanaki* SK, majdabadi ZA, *et al*. Nurse's perception regarding challenges in home care during COVID-19: a qualitative study. *Research Square* 2022.
21 Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today* 2004;24:105–12.
22 Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care* 2007;19:349–57.
23 Polit DF, Beck CT. Essentials of nursing research; 2014.
24 Speziale HS, Streubert HJ, Carpenter DR. *Qualitative research in nursing: advancing the humanistic imperative*. Lippincott Williams & Wilkins, 2011.
25 Grove SK, Burns N, Gray J. *The practice of nursing research: appraisal, synthesis, and generation of evidence*. Elsevier Health Sciences, 2012.
26 Lincoln YS, Guba EG. But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New Dir Program Eval* 1986;1986:73–84.
27 Ris I, Volken T, Schnepp W, *et al*. Exploring factors associated with family caregivers' preparedness to care for an older family member together with home care nurses: an analysis in a Swiss urban area. *J Prim Care Community Health* 2022;13:21501319211039.
28 Skorpen Tarberg A, Landstad BJ, Hole T, *et al*. Nurses' experiences of compassionate care in the palliative pathway. *J Clin Nurs* 2020;29:4818–26.
29 Vermorgen M, Vandenbogaerde I, Van Audenhove C, *et al*. Are family carers part of the care team providing end-of-life care? A qualitative interview study on the collaboration between family and professional Carers. *Palliat Med* 2021;35:109–19.
30 Ris I, Schnepp W, Mahrer Imhof R. An integrative review on family caregivers' involvement in care of home-dwelling elderly. *Health Soc Care Community* 2019;27:e95–111.
31 Valero-Cantero I, Casals C, Carrión-Velasco Y, *et al*. The influence of symptom severity of palliative care patients on their family caregivers. *BMC Palliat Care* 2022;21:27.
32 Becqué YN, Rietjens JAC, van der Heide A, *et al*. How nurses support family Caregivers in the complex context of end-of-life home care: a qualitative study. *BMC Palliat Care* 2021;20:162.
33 Claesson M, Jonasson L-L, Lindberg E, *et al*. What implies registered nurses' leadership close to older adults in municipal home health care? A systematic review. *BMC Nurs* 2020;19:30.
34 Johansen H, Grøndahl VA, Helgesen AK. Palliative care in home health care services and hospitals–the role of the resource nurse, a qualitative study. *BMC Palliat Care* 2022;21:64.
35 Gifford WA, Graham ID, Davies BL. Multi-level barriers analysis to promote guideline based nursing care: a leadership strategy from home health care. *J Nurs Manag* 2013;21:762–70.
36 Rusli KDB, Tan AJQ, Ong SF, *et al*. Home-based nursing care competencies: a scoping review. *J Clin Nurs* 2023;32:1723–37.
37 Becker CA, Lorig F, Timm IJ, eds. *Multiagent systems to support planning and scheduling in home health care management: a literature review. Artificial intelligence in health: first International workshop, AIH 2018, Stockholm, Sweden, July 13-14, 2018, revised selected papers 1*. Springer, 2019.
38 Minardi LK, Rooney C. Reducing home health care costs through a preferred agency network for an accountable care organization. *NEJM Catalyst* 2021;2.
39 McClimans JE. *An exploration of care coordination programs to improve communication between home health agencies and caregivers*. Capella University, 2021.
40 Karnehed S, Erlandsson L-K, Norell Pejner M. Perspectives on an electronic medication administration record in home health care: qualitative interview study. *JMIR Nurs* 2022;5:e35363.
41 Berland A, Holm AL, Gundersen D, *et al*. Patient safety culture in home care: experiences of home-care nurses. *J Nurs Manag* 2012;20:794–801.
42 Grieco L, Utley M, Crowe S. Operational research applied to decisions in home health care: a systematic literature review. *J Oper Res Soc* 2021;72:1960–91.
43 Bergman A, Song H, David G, *et al*. The role of schedule volatility in home health nursing turnover. *Med Care Res Rev* 2022;79:382–93.
44 Tollefsen S, Førland O, Deilkås ECT, *et al*. Patient safety culture in Norwegian home health care–a study protocol. *TFO* 2020;6:154–64.
45 Nikbakht Nasrabadi A, Mardanian Dehkordi L, Taleghani F. Nurses' experiences of transitional care in multiple chronic conditions. *Home Health Care Manag Pract* 2021;33:239–44.
46 Stefanicka-Wojtas D, Kurpas D. eHealth and mHealth in chronic diseases—identification of barriers, existing solutions, and promoters based on a survey of EU stakeholders involved in regions4Permed (H2020). *J Pers Med* 2022;12:467.
47 Di Mascolo M, Martinez C, Espinouse M-L. Routing and scheduling in home health care: a literature survey and Bibliometric analysis. *Comput Ind Eng* 2021;158:107255.
48 Hovlin L, Hallgren J, Dahl Aslan AK, *et al*. The role of the home health care physician in mobile integrated care: a qualitative phenomenograpic study. *BMC Geriatr* 2022;22:554.
49 Kianian T, Lotfi M, Zamanzadeh V, *et al*. Exploring barriers to the development of home health care in Iran: a qualitative study. *Home Health Care Manag Pract* 2022;34:83–91.
50 Almulla H, Hassouneh D. Home-based palliative care and home health care in Saudi Arabia: an integrative literature review. *Home Health Care Manag Pract* 2022;34:288–301.
51 Yoshimatsu K, Nakatani H. Attitudes of home-visiting nurses toward risk management of patient safety incidents in Japan. *BMC Nurs* 2022;21:139.
52 Molnárová E. Evaluation of selected indicators of home health care in the Czech Republic. In: *Public Economics and Administration*. 2021: 319.

BMJ Open Qual: first published as 10.1136/bmjoq-2023-002335 on 14 July 2023. Downloaded from http://bmjopenquality.bmj.com/ on April 28, 2024 by guest. Protected by copyright.

Manuscript: Contributing Factors involved in the safety of elderlies with chronic illness in home health care: A Qualitative Study

Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

Developed from:
Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

No. Item	Guide questions/description	Reported on Page #
Domain 1: Research team and reflexivity		
Personal Characteristics		
1. Inter viewer/facilitator	Which author/s conducted the inter view or focus group?	Page 6(first author)
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	Title page (PhD)
3. Occupation	What was their occupation at the time of the study?	Title page
4. Gender	Was the researcher male or female?	female
5. Experience and training	What experience or training did the researcher have?	Title page
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	Page 6-8 .
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Page 6-8
8. Interviewer characteristics	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Page 6-8

Domain 2: study design		
Theoretical framework		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	Page 6 - 8
Participant selection		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Page 6
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Page 6
12. Sample size	How many participants were in the study?	Table 6 and page 7
13. Non-participation	How many people refused to participate or dropped out? Reasons?	Page 6-8
Setting		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Page 6 .
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	Page 7-8
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Table1 and Table 2
Data collection		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	page 6-8
18. Repeat interviews	Were repeat inter views carried out? If yes, how many?	yes, on page8
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	Page 6-7-8
20. Field notes	Were field notes made during and/or after the inter view or focus group?	Page 6-8
21. Duration	What was the duration of the inter views	Page 6

	or focus group?	
22. Data saturation	Was data saturation discussed?	Page 8-9
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	Page 9
Domain 3: analysis and findings		
Data analysis		
24. Number of data coders	How many data coders coded the data?	Page 6-8
25. Description of the coding tree	Did authors provide a description of the coding tree?	Table 6-8
26. Derivation of themes	Were themes identified in advance or derived from the data?	Page 8-9
27. Software	What software, if applicable, was used to manage the data?	Page 6
28. Participant checking	Did participants provide feedback on the findings?	Page 9
Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	Page 10 to 12 and table 4
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Yes, there was. Page 10-12
31. Clarity of major themes	Were major themes clearly presented in the findings?	Yes. they were. From page 10-12
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Discussion of major and minor themes From page 14 to 16

interview guide

Participant number:

Demographics:

Mr./Ms.:

Nursing care center:

education:

Marital status:

Age:

Gender:

Shift work:

Work history of home care:

Position: (nurse, Nurse assistant, family caregiver(Relative to the patient)):

The questions you will be asked are related to the explanation of the **Contributing Factors involved in the safety of elderlies with chronic illness in home health care: A Qualitative Study**. Your answers to these questions will be used to complete my article. None of your names will be mentioned in any part of the thesis and the details of your information and answers will remain completely confidential. Also, whenever you don't want to continue the interview, you can tell me and I will stop the interview. Thank you in advance for your cooperation. If you allow us to start the interview?

(warm up will be done before the interview)

1. Tell us a little about your experience of caring for patients at home?

2. According to your experience, which factors facilitate the safety of the patients at home? If possible: give an example, explain a little more?

3. According to your experience, which factors and problems threaten the safety of the patients at home? If possible: give an example, explain a little more?

4. Are there any items that I did not ask and you wish to add?