

# The Challenges of Ethical Behaviors for Drug Supply in the Iran Pharmacies by Deontological Approach

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## Research article

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## **Abstract**

**Background:** Pharmacists as the trustee of pharmacy services must adhere to ethical principles and evaluate their professionalism. Pharmacists may sometimes show different unethical behaviors in their interactions, so it is essential to understand these behaviors. The present study aimed to determine the challenges of ethical behaviors based on a deontological approach in the area of drug supply in pharmacies.

**Methods:** This qualitative content analysis study was conducted in Kerman in 2018. A range of key players in the field of medication supply were selected by snowball sampling to be interviewed. An effort was made to select samples with maximum variation. Exclusion criteria were; having less than 3 years of experience in pharmacy and supervision, not willing to participate in the interview, and canceling the interview for 3 times. The participants in this study consisted of pharmacy technicians (n=5), patients (n=6), pharmacists (n=8), inspectors of insurance companies (n = 4) and inspectors of food and drug administration (n = 3). Data were analyzed by MAXQDA- 10 software using guided content analysis. The principles of "Beauchamp and Childress Ethics" theory including autonomy, beneficence, non-maleficence, and justice were selected as the main principles.

**Results:** Data analysis in this study revealed 8 main categories and 26 subcategories. The main categories included; patient privacy, patient independence, communication principles, patient-centered services, drug supplier, patient harm avoidance, supervision, and distributive, procedural and interactive justice. These categories also had some subcategories, including increasing patient awareness, culturing prescription and rational drug use, confidentiality and privacy, and pharmacist-patient relationship/communication, which were the biggest ethical challenges in the area of drug supply at pharmacies.

**Conclusions:** According to the deontological approach, two principles of autonomy and beneficence had the greatest challenges. The emphasis of policymakers in health care system should be on patient independence, patient privacy, and patient-centered services. The results of this study can be used as a tool for introducing ethical challenges to policymakers and developing educational contents, charter of professional ethics in pharmacies, and measures of pharmacy accreditation.

## **Background**

The function of health system is in many ways dependent on human resources and is influenced by their behavior and ethics. Today, due to the development of technology and the complexity of human behavior, the application of ethics in various professions is of great importance. However, service providers tend to unnecessarily increase the use of healthcare due to the profit gain motive, and the patient has no choice but to purchase the service because of the lack of information(1).

Among the professional occupations, pharmacy as a profession has both commercial and therapeutic dimensions (2, 3). It also has some specific complexities (4). Ethical pharmacists in the delivery of

pharmaceutical care are influenced by various factors, including physicians' decisions, rules and regulations, guidelines, and marketing strategies of pharmaceutical industry. Also, ethic is the result of interaction between commercialization, consumerism, and pharmaceutical services (5). Thus, pharmacists or pharmaceutical technicians are exposed to financial incentives (6) and may not be able to withstand temptation (7).

Pharmacists, as providers of pharmaceutical services, in any role and position, must adhere to ethics and evaluate their professional performance on the basis of ethical principles. Hoarding, black market, inter-professional trading, and unclear pharmaceutical policies are examples of ethical dilemmas that pharmacists or pharmaceutical technicians are faced with(8, 9) and endanger consumers' health.

Since ethical considerations come within the context of ethical system, five ethical systems have been developed at different times as the dominant systems in the world (10), which include; 1) utilitarian system, 2) deontological system, 3) justice system, 4) libertarian system, and 5) benevolent system. It should be noted that, there are other ethical systems based on school of thoughts and religions that have different definitions for specific words, such as justice and benevolence, which can be interpreted differently in different discourses (11, 12). Ethical principles also differ in different ethical systems. Thus, as a considerable proportion of theories in the medical ethics philosophy is based on the principle of duty, the deontological system has been used to explain and justify ethical studies.

Cooper (2007), in a qualitative study that investigated ethical problems and solutions among British pharmacists, rendered two approaches to ethical problem solving. Kant's deontological approach is one of the most controversial theories in the realm of moral philosophy, which proposes three principles including generalizability, respect for the dignity of individuals, and lawmaking for the moral community. Beauchamp and Childress's theory has 4 principles, including autonomy, beneficence, non-maleficence and justice, which are consisted as the basis for ethical decision-making in medicine. They also proposed a model of ethical decision-making in the areas of business and health care ethics (13).

The deontological approach of W. David Ross also outlines duties that include loyalty, gratitude, charity, justice, self-improvement, and non-maleficence. He also states that some tasks are more imperative than others and can help physicians and pharmacists solve their ethical problems (14).

There is insufficient evidence to address the challenges of ethical behavior in the area of drug supply in pharmacies. Many international studies have used a questionnaire containing ethical scenarios and respondents had to select an option (15). Some studies analyzed the frameworks of pharmaceutical ethics (13). W. Göttgens-Jansen in a study highlighted the awareness and insight into the ethical aspects of working in pharmacies and found 9 steps for analyzing ethical dilemmas and solving problems (16). However, many of these examples used in various studies are from American, British, Swedish and Australian pharmacists (13, 17). Lowenthal conducted a study in the United States to examine the attitudes of pharmacy students toward ethical dilemmas and compare them with the pharmacists and found that, the main problem of pharmacy students was economic issues, and also ethical issues should be discussed in pharmacy curriculum (18). In Iran, in order to support and guide work process and

decision-making of those working in pharmaceutical profession, a comprehensive document of ethics in pharmaceutical system was approved and announced by the Ministry of Health (19). In 2015, a study examined the attitudes and experiences of pharmacists and faculty members of Shiraz school of pharmacy towards ethical challenges in pharmacies (20). In a study entitled: "Pathology of pharmacy ethics", Rasam emphasized on the importance of paying attention to ethics pathology in drug therapy process (9).

Thus, the present study was conducted to examine the perspectives and experiences of pharmaceutical technicians, patients, pharmacists, inspectors of insurance companies, and inspectors of food and drug administration about existing ethical behaviors in the area of drug delivery systems in pharmacies based on the Beauchamp and Childress theory. The results of this study are expected to provide an appropriate strategy for planning and improving ethical behaviors by identifying ethical challenges in the area of drug supply in pharmacy.

## Methods

This qualitative content analysis study was conducted in Kerman in 2018. A range of key players in the field of medication supply were selected by snowball sampling to be interviewed. An effort was made to select samples with maximum variation. The purpose was to select people with a deep understanding of the subject under study. Exclusion criteria were; having less than 3 years of experience in pharmacy and supervision, not willing to participate in the interview, and canceling the interview for 3 times. General characteristics of the participants are shown in Table 1. The interviews continued until no new information was obtained from the interviews (data saturation). To ensure data saturation, two additional interviews were conducted.

Table 1  
General characteristics of the interviewees

Interview environment	Field of activity	Number
drugstore	Pharmacist	8
	Technician	5
	Patient	6
Insurance	Insurance Inspector	4
Food and drug administration	Food and drug administration inspector	3
Interviewees		26

Semi-structured method was used in the interviews with an interview guide which was based on Childress's ethics framework, then a pilot interview was conducted with one person and all identified problems were corrected. Each interview took about 30-50 minutes and the average time of each

interview was 37 minutes. Interviews were conducted at places agreed upon by the participants. The content of interviews was extracted immediately after each interview and used as a guide in subsequent interviews. To ensure the trustworthiness of findings, Lincoln and Guba's method(21) was used, which is the equivalent of validity and reliability in quantitative research. Based on this method, four criteria of credibility, transferability, dependability, and confirmability were used for the evaluation. Sampling was carried out with the maximum variation to ensure that data are acceptable. Interviews were conducted over a 6-month timeframe, factors such as allocating sufficient time for data collection, good communication with research participants, and taking notes while recording data were considered during the study. In addition, the codes obtained from interviews were given to a number of participants to be reviewed by them and necessary modifications were made based on their comments. The codes were also reviewed by the research team members in numerous meetings and the inconsistencies were discussed until consensus was reached. Then, the codes were finalized.

To ensure transferability of results, all stages of the study along with the study environment and context were fully explained, so that future readers can repeat the study if they intend to do so. To ensure the reliability of findings, study process was presented to the research team who had experience in qualitative research and they confirmed the study results after reviewing the process. Given that, the three criteria of validity and reliability of qualitative research have been met in this study, it can be concluded that confirmability of results has also been ensured.

Guided content analysis was used to analyze the data. In this type of analysis, existing knowledge about the phenomenon is usually incomplete and requires further discussion. The purpose of guided content analysis is to validate or develop a theoretical framework (22). The ethical principles of Beauchamp and Childress theory were chosen as the main principles. The sub-principles were also extracted from the interviews and tailored to the relevant core principles.

## Results

In the present study, 8 main categories and 26 sub-categories were identified by guided content analysis to determine the challenges of drug supply.

Table 2  
Challenges of drug supply at the pharmacy level

Principle	Category	Sub-category
Autonomy	Patient independence	Participating patient in decision-making process Giving required information to patient
	Patient privacy	Respecting patient's privacy, confidentiality, preserving information privacy, same-sex care delivery
	Communication principles	Pharmacist-patient relationship, physician-patient relationship
Non-maleficence	Patient harm avoidance	Educational system in teaching pharmacological ethics Pharmacists' awareness of own professional commitment Not letting pharmacy license Lack of ignorance and not rushing to deliver drug to patient
	Supervision	Pharmacist's monitoring of drug storage condition in the pharmacy Import of foreign medications Advertising of drugs based on effectiveness, and not based on their brand Disposal of pharmacological waste
Beneficence	Patient-centered services	Considering patient's interests Increasing patient's awareness Sense of responsibility in pharmacological system Acceptable quality of medications
	Optimization of drug use	Standardizing pharmacy in terms of space, temperature, humidity, shelving Criteria for entry/exit of drug from drug list Culturizing prescription and rational drug use Drug hoarding by distribution companies
Justice	Distributive, procedural and interactive justice	Equitable distribution of drug Justice in provision and distribution of drug Equitable distribution of responsibilities and interpersonal interests Justice in law enforcement Justice in protecting people's rights

## Principle 1: Autonomy

Human dignity should be respected in any circumstances, but a patient or a healthy person who has a health need deserves special attention and respect. Based on the findings, three main categories related to autonomy were identified in this study.

## Category 1: Patient Independence

The ability to make informed or rational decisions and to act upon them is only made in caring situations. Patient independence is influenced by following factors and categories:

Participating patient in decision-making was one of the codes of patient independence category. One participant in this regard stated:

"...Lack of patient participations in decision-making on treatment is a moral challenge, and based on the principles of evidence-based medicine, the patient must be given the right to choose and it is wrong to use clinical power when prescribing a treatment..." (Pharmacist 5).

"...Lack of ethical decision-making models in pharmacies has caused them to not adhere to ethical principles and give, for example, calculus syrup to patient instead of prescribed calculus tablet regardless of patient's preferences..." (Insurance inspector 1)

Giving patient the required information for decision-making was one of the codes of patient independence category. The participants in this regard stated:

"...Presence of pharmacist in the pharmacy gives patient the right to receive information about drug treatment. Also, all information on how to use drugs in treatment process or other information should be given to patients according to their level of knowledge, literacy and health status, so that it would be understandable for them and their next of kin..." (Pharmacist 2)

"...If the pharmacist does not give information to patient on how to use the drug and its side effects, the patient cannot get a favorable outcome from the treatment, so it is useless and dangerous to administer drug without providing information about its use. This is why the pharmacist should be obliged to provide pharmaceutical information as the last treatment loop..." (Food and drug administration inspector 4)

## Category 2: Patient Privacy

Preserving patient physical privacy was one of the codes found in this student. In this regard, some participants stated:

"...Physical privacy is a place that surrounds a person's body and is actually a protective area for the person. The pharmacy's space should be such as to create an opportunity for respecting people's privacy..." (Patient 4)

"...A pharmacy is an environment where patients have fewer facilities and more often their privacy is not respected and this is a moral challenge which inflicts harm..." (Pharmacist 2)

"...Patients' privacy is not respected in pharmacy due to the lack of space physical which means that, there must be some private space between them and other clients when buying. One of our challenges is the crowded pharmacies and physical contact between ladies and gentlemen..."(Pharmacist 2)

Privacy and confidentiality was another code which was found in this study. Participants in this regard stated:

"...This issue is not specific to Iran, and countries such as the United States, Britain and Scotland also insist that pharmacists and pharmaceutical technicians should strive to respect the patient and protect their right to confidentiality..." (Pharmacist 1)

"...Patients want their pharmaceutical information to be kept confidential by pharmacist. The concern of some when visiting a pharmacy is that their colleagues, friends and neighbors will see or hear their pharmaceutical information..." (Patient 4)

"...This is one of the most important ethical issues in the pharmacy environment and the need for serious and practical commitment of pharmacy's staff is evident. They are also obliged to adhere to this right by Sharia and law. But a problem that I have always seen in Kerman province is that patient's privacy and confidentiality is not important to pharmacist and pharmacy staff..." (Patient 1)

Gender proportion or same-sex care delivery: The vast majority of participants believed that:

"...People tend to get their medication and ask their questions from their same-sex peers, and adhering to the principles of same-sex care in the health sector will increase the morale of patients and reduce their stress when receiving a service..." (Pharmacist 7)

## Category 3: Communication Principles

Proper communication is a win-win process for the pharmacist, the patient, the physician, and the healthcare system in general. This communication should be a two-way communication and have its own rules. This category had two subcategories as follow:

Pharmacist-patient relationship/communication: The majority of participants believed that:

"... The treatment environment should be such that the patient realizes staff are here because are valuable to them. Also, appropriate relationship and preserving patient dignity regardless of race, skin color, nationality and income are fundamental to an effective communication in clinical environment and its absence is a moral challenge..."

"...Sometimes pharmacists are faced with unethical and unprofessional request For example; people want cosmetic drugs instead of prescription drugs, or want illegal document for insurance without a prescription. Such issues are due to the patient's unethical relationship with the pharmacist..."  
(Pharmacist 4)

"... The relationship between pharmacist and patient is a relationship of two people that should be based on respect and trust, but unfortunately for a number of reasons, including self-interest good communication principles are not respected..." (Pharmacist 5)

Physician-pharmacy relationship/communication: Treatment process causes physician to have a close relationship with pharmacist, but sometimes the physician-pharmacy relationship presents an ethical challenge. Participants in this regard stated that:

"...The physician's family relationship with the pharmacist is one of the ethical challenges in this field, and the physician should prescribe medication based on patient's needs, but sometimes it is based on financial interest and other motivations. For instance: the daughter of a pharmacy owner is dermatology specialist who send her clients to her father's pharmacy, justifying it by saying that, this pharmacy reads the prescription better, is more skillful in making mixed medicines, and has a complete list of drugs without a deficit. "(Insurance Inspector 2)

"...Occasionally, there is contract between physician and pharmacist in the way that, the pharmacist gives the list of its near-term medications and the physician prescribes these unrelated drugs to patients...."  
(Patient 5)

## **Principle 2: Non-maleficent**

### **Category 1: Patient harm avoidance**

The pharmacy is permitted to take actions that their interests are greater than their risks. In relation to this ethical principle, two main categories were extracted from the interviews, including patient harm avoidance and supervision.

Educational system in teaching the principles of pharmaceutical ethics: according to the participants' perspectives:

"...There is no any related module/course for pharmacy students. After graduating, pharmacists are unaware of the principles of ethics in pharmacy and the rules that apply to their pharmaceutical activities. They think that pharmacy like the local supermarket is a place for selling drugs. This issue can cause irreparable damage to the country's health care system..".

Pharmacists' awareness of own professional commitment was one of the codes of this category. One participant in this regard stated that:

"...The pharmacist must be aware of the requirements and principles within the pharmacy system and prevent any harm to patient and the pharmacy. Professional tasks should be done by the pharmacist and the pharmaceutical technicians should not be allowed to arbitrarily and unknowingly prescribe medication and by doing so affect the health system..." (Inspectorate of food and drug administration 1)

Not letting pharmacy license: Participants believed that:

"...Letting the pharmacy degree is one of the ethical challenges in the pharmacy system in our country. Pharmacy graduates in the country lend their in pharmacy license to investors at exorbitant prices. A pharmacist, who does not have a billion Tooman to buy a property and medicines to open a pharmacy, lends his license to an investor. Is it a pharmacy or a supermarket? The main issue is avoiding harm to patient..".

Lack of negligence and not rushing the deliver drug to patient are effective measures to prevent harm to patients. One participant in this regard stated that:

"...The pharmacists should manage their pharmacy with the view of giving priority to patient and avoiding patient harm..." (Pharmaceutical Technician 3)

"...I saw a pharmacy where, the manager rated technicians based on the number of prescriptions they prepared, and this had increased carelessness and negligence. Patients' life depends on medication and negligence puts patient's life in danger, which its moral responsibility is on the pharmaceutical technicians..." (Deputy Inspector 1)

## Category 2: Supervision

Pharmacist's monitoring of drug storage in the pharmacy: Participants in this regard stated:

"...Due to the reactive and supplementary substances in medicines, heat, cold, humidity, and light affect the nature of drugs..." (Pharmacist 1)

"...In the pharmacy evaluation guideline, which is issued every 3 months, the storage condition has for 50 points out of 1000 evaluation points. Although this indicator is very important and affects the quality of drugs, it pint is much less than other indicators..." (Food and drug administration's inspectorate 1)

Import of foreign drugs: although the participants believed that:

"...Large number of drugs is currently imported and some of these drugs have national samples. Pharmaceutical import restrictions have created many challenges in the pharmaceutical field that need supervision..." (Pharmacist 2)

"...Drugs sanction has led to a large volume of drugs being trafficked in the country, and supervision is one of the reasons for this problem..." (Patient 4)

"...Inadequate supervision over the entry of foreign drug may cause irreparable harm to patient. Another participant in this regard stated: The entry of foreign complementary drugs into the country have increased, and when the country is faced with a shortage of resources to meet its pharmaceutical needs, the cost-effective studies should be carried out on complementary drugs..." (Pharmacist 6)

Advertising drugs based on their effectiveness and not just paying attention to their brand: According to the participants' statements, one of the current challenges in pharmacies is supplying drug based on their brand and not their effectiveness. In this regard a participant said:

"...Many physicians, including dermatologists prescribe branded drugs advertized by the drug salesmen without knowing their safety and effects on health..." (Insurance inspector 2)

"...Prescribing an effective drug ensures positive treatment outcome and now prescribing foreign drugs are being prohibited by internal physicians under Sect. 6 Sixth of the Developmental Law. This is while the quality of national drugs is not the same as foreign ones and this paves the way for drug trafficking..." (Pharmacist 3)

Disposal of pharmaceutical waste: Based on the findings of this study, all participants believed that:

"...Disposal of pharmaceutical waste is not done properly, and abandoning drugs in nature or household waste can cause many problems, including microbial resistance..."

## **Principle 3: Beneficent**

The health system strives to maximize beneficence for individuals in line with its health goals. Beneficence means taking activities that benefit patients. Patient-centered services and drug use optimization were the two main categories identified in relation to beneficence.

### **Category 1: Patient-centered Services**

Providing patient-centered service is influenced by the following known factors:

Considering the patient's interest was one of the factors highlighted in this study. The participants believed that services provided to patient should be such that, the patient's benefit overrides the financial and economic benefit of the pharmacy.

"...When drug supply in the pharmacy is seen as a business, the patient's interest goes away and the profits from the sale take priority" (Pharmacist 4). Another interviewee stated that: "In pharmacy, financial gain is more important than serving patient, and when the basis is just money, patient will not be in priority. In such situation, the public view pharmacists as thieves..." (Food and drug administration inspector 2)

Increasing patient awareness: This prepares people mentally and emotionally in facing disease-induced anxiety. Below are the interviewees' statements about patient awareness:

"...The patient has the right to know how to take the medication. Not giving information or giving wrong information to patients breaks the treatment cycle. In such situation, the patient will not be treated and

the treatment will not be effective. However, despite the importance of increasing patient awareness both legally and morally, this is not implemented for the sake of pharmacist benefit..." (Pharmacist 7)

"...Putting similar drugs than those written in prescription without informing physician and patient is a moral challenge. The pharmacy has the right to consult, but has no right to change the prescription..." (Insurance inspector 1)

"...We should inform patient about the near-expire drugs on the prescription. The patient could be an illiterate old man or woman who keeps the medication for few months without knowing that they will be expired soon..." (Pharmaceutical Technician 4)

Another interviewee in this regard stated: "Patient should be aware of any mistake in insurance deductions created by physician that could cause him/her to pay full charge for the drugs." (Patient 3)

"...According to the participants' comments, information on the technical fees, drug interactions, medication costs, adverse effects of the drug, and how to use the drug are among the issues that the patient should be aware of..."

**Sense of responsibility in pharmaceutical system:** Another issue that emerged in relation to patient-centered services was taking responsibility in the cycle of pharmaceutical system. In this regard, the participants stated that:

"...Morality means a sense of responsibility and should be not only in the pharmacist but also in the pharmacy technician. The technician should check the validity of prescription so that the pharmacy will not be fined..." (Pharmacist 6)

"The pharmacist must give clear and legible information to patient and this responsibility cannot be delegated to technicians as this is the last thing that patients do before leaving the pharmacy." (Insurance inspector 2)

"...Our challenge is the targeted sources of information, such as visitors of pharmaceutical companies, specially the cosmetic companies that promote expensive and in some cases less-effective drugs for more profit. In such situations, nothing but a sense of responsibility and conscience of technical officer can prevent this problem..." (Insurance inspector 3)

Acceptable quality of medication was another code related to patient-centered services. In this regard, the participants believed that:

"...The production of low quality drugs is a waste of resources and sometimes a risk to people's health. The production of poor quality drugs is a problem..." (Pharmacist 5)

"...The herbal medicines that are being distributed and the ointments and creams that are manufactured manually in the pharmacy may not have the required quality. For instance, the Zarband herbal company

changes the expiry dates of its products and sends them to pharmacies to be sold to patients. Ointments and creams are also occasionally seen to be made by non-pharmacists..." (Pharmacist 8)

## Category 2: Drug Supplier

The optimization of drug use is influenced by following factors:

Standardization of the pharmacy in terms of space, temperature, humidity and shelving: According to most participants, this is important as it affects people's health, but it is less important in the pharmacy environment. Below are some of the participants' statements in this regard:

"...At the pharmacy, the condition of drug storage, cleanliness of the pharmacy environment and the instructions of drug storage in order to achieve optimal conditions should be monitored and supervised..." (Insurance inspector 1)

"...The physical standards of pharmaceutical care have been developed by the Food and Drug Administration in 8 articles and have been issued to pharmacies and drug stores. This regulation requires pharmacies to comply with standards regarding temperature, humidity, light and shelving, but it is not respected and considered important for many reasons..." (Food and drug administration inspector 4)

"...Sometimes pharmacies use lasers and lighting effects to make cosmetics products more luminous and noticeable, which can affect the chemical formulation of the products and medications and make them ineffective..." (Pharmaceutical Technician 5)

"...One ethical challenge that seems to be regular for pharmacy technicians is the use of cooler or heater for air conditioning. At one of my pharmacy inspections, I saw a KPTVA spray that was placed next to the heater with very high temperature and no one was concerned that the heat could decrease its effectiveness. Not controlling the temperature and humidity of pharmacy may cause financial loss and personal injury..." (Food and drug administration inspector 4)

The criteria for entry or exit of drug to drug list was another code related to optimization of drug use. In this regard, the participants stated that:

"...There are currently many drugs on the nation's drug list that cannot be prescribed at all. When the selection of drugs on the list is based on proper and evidence-based criteria, the health indicators would improve too..." (Pharmacist 4)

"...Adding or removing drugs from the drug list and updating the drug list is in line with the Sixth Developmental Plan, but because the workgroup is novice the criteria for drug entry into the drug list are causing discontent and challenges in the public and pharmacies..." (Pharmacist 5)

Culturizing prescription and rational drug use: Proper prescription and rational use of medication is currently one of the most important factors in health care. We are seriously wasting resources in the field

of medication. All participants, while emphasizing on the culturizing prescription and rational drug use, believed that:

"...Culturizing is a very important factor in prescribing and taking medication. If the pharmacy send patient home with a large bag of drugs, the patient thinks that the physician is good and this is one of the causes of irrational prescription..." (Patient 3)

"...Physician knows that if he writes a simple prescription for patient, he will not get a good response from the patient and sometimes, patient will not follow-up his treatment. It can also be a bad advertising for the physician. We have a cultural problem and the prescription and rational drug use is a problem in Iran..." (Pharmacist 6)

"...One factor that causes irrational drug use is a faulty system of drug prescription and distribution which is caused by false propaganda and claims of some pharmaceutical companies and visitors that reward physicians and pharmacists to use their products..." (Insurance inspector 2)

Drug hoarding by distribution companies: Drug hoarding or stoking and refusal to supply drug was another code related to optimization of drug use from the participants' point of view. For example, participants stated that:

"...The country has been sanctioned by some countries because of political issues. As a result, raw materials and technology are difficult to be imported into the country and this creates a suitable situation for drug trafficking and increasing price. Government must set policies to prevent hoarding..." (Insurance inspector 2)

"...Hoarding medicines that are directly linked to health and well-being may endanger the lives of thousands of innocent people, and the primary mission of pharmacists is to benefit society..." (Patient 5)

"...One of the factors that disrupt the optimum drug cycle is that, pharmacists and distribution companies stoke drugs in stores other than their pharmacies due to the shortage of medicines and become drug hoarders..." (Pharmacist 1)

## **Principle 4: Justice**

The complexity of justice in medical ethics and health system suggests that achieving it is difficult because of different philosophy and evaluation of ethics. Justice, which means equity in allocation of scarce health care resource and deciding who receives what treatment, was emphasized in three categories.

### **Category 1: Equitable Distribution**

Equitable distribution of drugs: was one of the codes highlighted in the present study. The participants believed that:

"...The transfer of pharmacy capital is not fair and the pharmacy capital is determined by the brokers according to the insurance-related license and the amount of pharmacy sales, which is licensed by the food and drug administration..." (Food and drug administration inspector 3)

Justice in the supply and distribution of medicines: in this regard, the participants stated that:

"...There is no justice in the allocation of medicines. Currently in the province, we do not have certain medications and in the distribution of medicines large cities are always prioritized..." (Patient 4)

"...Quota medicines are not distributed fairly, and we cannot track how many quota medications have been given to each pharmacy. Because people at the top of the Food and Drug Administration have their own pharmacy, so it is in the best interest of distribution companies to make these powerful people happy...." (Pharmacist 3)

Equitable distribution of responsibilities and interpersonal interests was one of the subcategories of equitable distribution that was highlighted in the present study. In this regard, the participants stated that:

"...The distribution of responsibilities and interests in the pharmacy must be based on fairness and benefit of the patient. Effective communication should also be established between individuals and this will happen when the allocation of tasks is done correctly...."

## **Category 2: Procedural Justice**

Procedural justice is the extent to which the rules and procedures specified by the policies are followed uniformly in all cases. One of the codes extracted from the interviews was justice in law enforcement.

Justice in law enforcement: Seeing individuals equal in law enforcement can provide a good basis for achieving justice in the community. It also increases patients' trust in the drug system. According to the interviewees:

"...People want the law to be implemented equally for everyone. If there is no justice in law enforcement, mistrust is created. Mistrust is the most serious problem in our health system, and if mistrust is the result of injustice in law enforcement, it cannot be corrected by guidelines and regulations".

## **Category 3: Interactive Justice**

Interactive justice is one of the main categories of justice. People are sensitive to the quality of their interpersonal interactions and tend to have relationships based on politeness, honesty, and respect

especially between patient and healthcare provider. Interactive justice is about the ways by which customers who received a faulty service are treated.

Justice in protecting people's rights was one of the subcategories of interactive justice, which was highlighted in the present study. In this regard, the participants stated that:

"... Interactive justice is felt when people's rights are being respected and unsatisfied customer is treated honestly, compassionately and politely. Pharmacies should treat patients as they would like to be treated by other pharmacies. ..."

## Discussion

The present study examined the challenges of ethical behaviors based on a deontological approach in the area of drug supply in pharmacy. According to Cooper RJ et al, many studies have been conducted on the ethics in health care, but ethical challenges in pharmacy have not been addressed (13). This qualitative study explored ethical behaviors based on four principles of bioethics and eliminated the suggestion made by the Cooper RJ. These four ethical principles are measured and judged in interaction with one another, and draw our attention to the extent and scope of their application, which is discussed below. The principle of autonomy gives patient the right to choose or refuse his or her treatment. The principle of beneficence refers to the fact that, healthcare providers must act in the patient's interest. The principle of non-maleficence emphasizes that patient should not be harmed. In regard to the distribution of health care resource and deciding who receives what treatment and medication, the principle of justice should be considered. According to the findings, the principles of autonomy and beneficence were most challenging among the rest, so these two principles will be further discussed.

## Autonomy: Patient Independence

The principle of autonomy determines the rights of individuals in decision-making. This principle refers to having respect for each individual in the community and the ability to make informed decisions on own issues. The autonomy principle is discussed in three main categories: patient independence, patient privacy, and compliance with the principles of communication, most of which are related to patient autonomy and privacy.

In the study of Limond et al., patients' independence was defined in two areas: providing sufficient information to patients and allowing them to make therapeutic decisions (23). In this regard, the results of other studies reveal that health care providers do not respect patients' autonomy as they do not involve them in the decision-making process and do not provide them with information they need (24, 25). In this regard, the Comprehensive Document of Pharmaceutical System and the Patient Rights Charter in Iran and the Patient Rights Charter of the American Hospitals Association (26) emphasize that comprehensible information must be given to patients and they must be involved in decision-making about any treatment or diagnostic process (19, 27). Another study showed that nurses do not engage

patients in clinical decision making, while patient participation is very valuable in decision making and improves the quality of services (28). Our study showed that, this issue is one of the ethical challenges in the field of medicine.

## Autonomy: Patient Privacy

Studies show that due to crowded pharmacies and insufficient patient space in the pharmacy, patient privacy is not preserved in the pharmacies (29). In the study of Wereth et al., the lowest satisfaction level was related to patient privacy in the pharmacy (30). Other health-related studies emphasize on the privacy and confidentiality of patients (31). Imaz's study showed that, the layout of pharmacy space is such that in about 50% of cases patients' physical privacy is not respected (32). The Patient Rights Charter also recognizes confidentiality and respect for patient privacy (27). According to the Code of Ethics of the American Pharmacy Association, pharmacists must strive to promote and protect patient privacy (33). People tend to get their medications and ask their questions from same-sex counterparts, while the UK Patient Rights Bill states that women should always have access to a female staff and people who perform examination and counselling must be the same – sex staff (34, 35). The present qualitative study, while examining patient privacy, showed that non-compliance with this principle is one of the major challenges in pharmacies.

## Autonomy: Communication Principles

A review of published studies of pharmacist-patient communication showed that pharmacist-patient communication is one-way and there is no interactive and collaborative process between them (36–39). The results of other studies of pharmacist-patient relationship have shown that, the requests that are contrary to professional and ethical responsibility and demands of jobbers harm ethical communication(40). Failure to adhere to the principles of communication and non- presence of pharmacist in the pharmacy is one of the factors that lead to ineffective communication that endangers patient's interests and undermines community's trust(41–43). Studies in other areas, such as physician-pharmacy relationship, have shown that pharmacists' family relations with physicians, pharmacists' financial relationship with physicians (32) and self-referral are among ethical challenges of physician-pharmacist relationship that diminishes people's trust and confidence in them, increases health care costs and the commercialization of treatment and medication, which in turn promotes unethical relationship between physician and pharmacist(44). In the United States, to combat professional misconduct between a pharmacist and a physician, the Stark Law's law was established that says physicians do not have the right to refer patients to places that benefit them(45). The present study, while qualitatively examining this principle, showed that non-compliance with communication principles is one of the major challenges in pharmacies.

## Non-maleficence: Patient Harm Avoidance

In principle, the most important thing for healthcare staff is not to harm patients and do their best with proper supervision. This is partly due to the fact that pharmacists believe they are doing well, without properly evaluating their performance and making sure it does not harm patient. The principle of non-maleficence will be discussed in two main categories, including patient harm avoidance and supervision.

Studies have shown that the weakness of educational system in teaching the principles of pharmaceutical ethics is one of the causes of harm to patient (33). Studies in other areas, such as teaching ethics to medical students, have shown that topics of medical ethics have been sporadically included in the pharmacy curriculum and many of the professional misconducts are due to the weakness of educational system in teaching ethics (46–49).

Pharmacists about their professional obligations is one of the ethical challenges in this field. Studies show that pharmacists are professional people who should be aware of their professional obligations and know and adhere to drug and pharmacy standards, however pharmacists' lack of knowledge in social and behavioral sciences, as well as ethical concepts and values creates ethical challenges (50, 51).

## **Non-maleficence: Supervision**

One of the most important principles of professional ethics is the principle of non-maleficence, which is closely related to the concept of supervision in the pharmacy. The results of studies, while emphasizing on the monitoring of drug storage in pharmacies, show that not only drug storage condition in the pharmacy is not supervised, but also there is not supervision in other areas of the health system, including diagnosis, prescription, distribution, and drug use, and this issue impose a heavy cost on the health system (52).

Studies have shown that lack of supervision over drug advertising causes financial gain to replace effectiveness and quality, and also prescribing brand medication to receive financial reward damages the professional responsibility of physicians and pharmacists (40). A study by Hosseini aimed at upholding consumer rights in advertising and marketing of pharmaceutical products found that, articles in the drug law that deal with advertising are vague, outdated and irrespective of world-wide developments and consumer rights (53). The present study showed that lack of supervision over drug advertising is one of the major challenges in the field of drug supply in the pharmacy.

## **Beneficence: Patient-centered Services**

Beneficence refers to measures that improve the well-being of others. It also refers to activities that benefit patients, however with no certainty. Based on the findings of present study, beneficence has two main categories, including provision of patient-centered services and optimization of drug use. This category is also one of the most important ethical challenges in pharmacy.

The results of a study showed that providing services that take into account the patient's interests and not misleading patients are among ethical principles in the pharmaceutical profession, and pharmacists should prefer the consumer's interest over their own economic interest, and if they ignore patient's interests and the principle of beneficence, no service can ethically satisfy the consumer(27, 54, 55). Australia's experience in professional ethics in pharmacy show that, pharmacists had many ethical issues and considered patient interest as the main framework they must act upon. They also considered financial problems as the most important factor that causes young pharmacists to ignore patient's interests when making decisions based on professional ethics (56). Studies in other areas, such as dentistry, show that prioritizing personal interests and financial gain over duties that they are expected to do as professionals contradicts ethical principles (54). In this regard, studies of Patient Rights Charter and the national Comprehensive Document on ethics of Pharmaceutical System have shown that pharmacists must accept the responsibility of being the guardians of health care quality and should only provide medications that have acceptable quality (27). The present study showed that failure to provide patient-centered services is one of the main challenges in the field of drug supply.

## **Beneficence: Optimization Of Drug Use**

A study aimed at prioritizing the factors affecting the quality of pharmacy services showed that pharmacy standard in terms of space, temperature, humidity and shelving and overall suitability of physical environment lead to satisfaction of costumers and beneficence (53). Also, international studies on the quality of pharmacy service reveal that tangible and physical factors such as standard of the pharmacy and suitability of physical environment affect the quality of pharmacy services and benefit both the patient and the pharmacy(26, 50, 57, 58) These studies suggest that, pharmacies should be standardized in terms of space, temperature, humidity and shelving, which is consistent with the results of present qualitative study.

## **Justice: Distributive Justice**

Justice means putting everything in its proper place, which is institutionalized within the human being and encompasses all individual and social areas of life. The principle of justice as one of the four principles of professional ethics was discussed in the present study in three main categories and distributive justice was the biggest ethical challenge in the principle of justice.

The results of studies emphasize and point to the importance of justice in drug supply and distribution (40). According to the results of present study, drug shortage affects fair drug supply to patients. Failure to adhere to justice in the distribution of resources undermines the professional responsibility of pharmacist and causes mistrust among patients. However, Article 4 of the Comprehensive Document on ethics of Pharmacy System states that pharmacist must be fair in the distribution of health resources and should be aware of any issues that undermine his or her ethical responsibilities. The Charter of

Patients' Rights in Iran emphasizes on the equitable distribution of healthcare resources and the prevention of waste of resources (52).

## **Justice: Procedural Justice And Interactive Justice**

In this study, participants referred to procedural and distributive justice as ethical challenges of justice. Article 4 of the Code of Professional Ethics states that pharmacist must contribute to the promotion of community health in a fair and equitable manner (19). A study that examined the outcomes of ethical values in an organization showed that ethical values affect procedural and interactive justice. When employees perceive procedures to be fair, they strive to undertake ethical behavior (56). These studies show that pharmacies should regulate their ethical behaviors based on justice, which is consistent with the results of present study.

## **Study limitations**

One of the most important limitations of this study was the reluctance of some stakeholders to participate in the study. Also, the interviews were limited to the pharmacy stakeholders. It is suggested that future studies should conduct interview with the drug manufacturers, drug importers, and drug distribution companies.

## **Conclusions**

The present study addressed the challenges of ethical behaviors in the supply of medications in pharmacies based on deontological approach. The results showed that most ethical challenges in drug supply were related to the aspect of autonomy with subscales of patient independence and privacy, and aspect of beneficence with the subscale of patient-centered services. In regard to the subscale of patient-centered services, attention should also be paid to increasing patient awareness, culturing of prescription and rational drug use, confidentiality and privacy, and pharmacist-patient communication. This study can be used as a tool for introducing ethical challenges to policymakers. It can also help to create a moral environment by reviewing drug supply policies. The Ministry of Health and other health and education authorities are suggested to dedicate ethical modules and seminars to pharmacy curriculum to reduce the ethical challenges of drug supply. Patients should participate in the decisions that are made for them and should also make decisions based on perceived information, this way we can respect patient's independence ethical commitment. Institutionalizing ethics and ethical responsibility when prescribing medications based on effectiveness creates trust and increases productivity. Pharmacy environment should also be designed to facilitate patient communication with the pharmacist and protect patient privacy.

Using the results of present study, the Food and Drug Administration can develop an ethics charter communicate its codes to pharmacists and pharmacy technicians. It can also use measures like compliance with ethical codes in granting and extending pharmacy licenses.

Given that many approaches and theories have been presented in the field of ethical behavior and there is no ethical theory that covers all considerations of experts in the field of work ethics, it is therefore suggested to consider other ethical approaches.

## Declarations

**Ethics approval and consent to participate:** The study was approved by the ethics committee of Kerman University of Medical Sciences (KUMS) with ID number IR.KMU.REC.1397.567 Ethical considerations were taken into account during data collection and analysis. Any questions asked about the study by the participant were discussed in full and the oral informed consent was obtained from the participants before recording the interviews. It was assured that confidentiality would be maintained, and that no personal information would be identified in any publications arising from the study. Participants were informed that participation was entirely voluntary and they could withdraw at any time. Respondent names were removed during analysis and other identifiers (i.e. Patient; Food and Drug Administration Inspector; Pharmacist, Insurance Inspector, and Pharmaceutical Technician) were replaced in the quotations used.

**Consent for publication:** Not applicable.

**Availability of data and material:** The transcribed interviews and open coding are available from the corresponding author on reasonable request. Of-course, it should be noted that all interviews were conducted, transcribed and are accessible into Persian language.

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**Authors' contributions:** MI conducted the interviews with participants, analyzed the data, and led the preparation of the manuscript. VYF provided mentoring in the implementation of the study and assisted in the preparation of the manuscript. MHM designed the study, supervised its implementation, assisted in analyzing the data, and assisted in the preparation of the manuscript. All authors read and approved the final version of the article.

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