



The Effect of Patients' Psychological Contract with Pharmacists on Medication Adherence: A Qualitative Study

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Objective: To investigate the effect of psychological contract of outpatients with hospital pharmacists on medication adherence, providing reference for improving the management of patients' medication adherence from the perspective of pharmacist-patient relationship and psychological contract.

Methods: The 8 patients who received medication dispensing service at the outpatient pharmacies at the First Affiliated Hospital of Zunyi Medical University and the Second Affiliated Hospital of Zunyi Medical University were selected for face-to-face in-depth interviews through a purposive sampling method. In order to get more potential information and adjust flexibly according to the actual situation of the interview, the interviews were set as semi-structured, and the interview content was analyzed by using Colaizzi's seven-step method of phenomenological analysis and NVivo11.0 software.

Results: The following four themes about effects of patients' psychological contract with hospital pharmacists on medication adherence were extracted: from the perspective of patients, the relationship between pharmacists and patients is generally harmonious; pharmacists can basically fulfil their responsibilities; patients' medication adherence needs to be improved; the status of patients' psychological contract with hospital pharmacists may affect medication adherence.

Conclusion: The psychological contract of outpatients with hospital pharmacists has a positive effect on their medication adherence. Effective management on medication adherence should involve the management on patients' psychological contract with hospital pharmacists.

Keywords: psychological contract, medication adherence, pharmaceutical care, qualitative study

Introduction

The pharmacist-patient relationship refers to the service relationship between pharmacists and patients.¹ Pharmaceutical care has been widely accepted and recognized as a direct, responsible, medication-related professional service provided by pharmacists for the purpose of improving the quality of life of patients.² With the development of the economy and society and the continuous advancement of the reform of the medical system, the patient's awareness on medical care and medication knowledge are continuously enhanced, and requirements for the quality of medical services from all walks of life are also increasing.^{3,4} The outpatient pharmacies in hospitals plays a key role in the patients' medication treatment, and patient-centered service awareness must be strengthened to improve patient's satisfaction with pharmaceutical services. To improve the comprehensive quality of pharmaceutical services, it is necessary to improve the relationship

between pharmacists and patients.⁵⁻⁷ Medication adherence is defined as the degree to which the patients follow a prescribed drug treatment plan.⁸⁻¹⁰ Adherence to medication prescriptions is necessary to receive the full benefits of medications, but there are always some patients do not correspond with the agreed prescription during this complex and dynamic process.^{11,12} Medication nonadherence occurs when patients do not follow the prescribed drug treatment plan, intentionally or unintentionally.¹³ This poor adherence leads to substantial increases in preventable and costly clinical outcomes.¹⁴ Good medication adherence is a prerequisite for successful treatment of diseases with medication and also a logical basis for judging the effectiveness of drugs and evaluating the rationality of medication schemes. There are many factors affecting medication adherence. In addition to objective factors such as adverse reactions and price of drugs, subjective psychological factors of patients are increasingly noticed for their special impact on medication adherence. For example, pharmacists failing to fully fulfil the responsibilities expected by their patients and/or to effectively communicate with their patients may lead to patients not trusting their pharmacists and thus disobeying the pharmacists' medication instructions.¹⁵ Hospital pharmacists play an important role in improving patients' medication adherence in terms of drug supply, medication consultation and clinical pharmacy.^{1,16,17} Patients' medication adherence is inevitably related to pharmacists' performance, and may also be dominated by their own social and psychological factors. The patient's psychological contract with the pharmacist refers to patients' implicit psychological expectation to their pharmacists when receiving hospital pharmaceutical services.¹⁸ The formation of psychological contract will make the patients recognize the pharmacists' responsibility and implicit expectation.¹⁹ We had preliminarily demonstrated that outpatients' psychological contract with the pharmacists is positively correlated with their medication adherence through questionnaire survey.¹⁸ Through quantitative research and questionnaires, data analysis visually showed the patients' psychological contract with pharmacists and patients' medication adherence. However, this is far from conclusive, and the effect of patients' psychological contract with hospital pharmacists on medication adherence need to be confirmed through additional qualitative analyze information from in-depth interviews with patients as medication adherence is a phenomenon with strong subjectivity and easily affected by subjective psychological factors. Semi-structured interviews may unearth additional information and provide an in-depth holistic exploration of the outpatient population, drawing conclusions and theories from the raw data. In this article, we aimed to carry out qualitative research to further confirm the effects of outpatients' psychological contracts with hospital pharmacists on medication adherence and provide substantial reference for management on medication adherence from the perspective of psychological contract in the context of the pharmacist-patient relationship.

Methods

Patient Participants

The research subjects were patients in the outpatient pharmacy of the First Affiliated Hospital of Zunyi Medical University and the Second Affiliated Hospital of Zunyi Medical University. Survey time: November to December 2019. Use the purposive sampling method (that is, randomly sample the research object according to the research purpose) to sample the survey object. Inclusion criteria: ①Patients who have received medication dispensing services in the outpatient pharmacy; ②Patients have the necessary abilities to listen, speak, read and write Chinese; ③Age ≥ 18 years old; ④ The patient voluntarily participate and provide informed consent.²⁰

Draft Investigation Process

The research was conducted by means of qualitative interview. Due to restricted conditions, the interview was conducted in the waiting area in front of the lobby of the outpatient pharmacy of the hospitals. The interview was carried out in a quieter environment for a clear recording. The purpose, content, methods and need for field notes of this study were detailed to the patients before the interview. Letters were used instead of the patient's real names to protect their privacy. The face-to-face and in-depth interviews were carried out to ask semi-structured questions. The interview process was non-instructive, to seek truth from facts, while respecting the patient's real situation and personal thoughts. The interview time for each patient was about 20 minutes. Referencing relevant domestic and foreign literature, the sample size was not

determined in advance, and the investigation was stopped when the collected information materials reach a saturation state (that is, no new information appears, and the information materials begin to appear repeatedly).^{21,22}

Self-Designed Interview Outline

The first draft of the interview outline was prepared by referring to relevant literatures. After the preliminary interview, the interview outline was revised according to the research purpose and content. Finally, the interview outline was improved under the guidance of relevant experts.^{23–25} The outline of the interview involved the following: The current status of the pharmacist-patient relationship in the patient's cognition; the patients' perception of the pharmacists' service attitude and behavior; the current status of patients' medication adherence; whether and how the patients' psychological contract with the pharmacists affects medication adherence.

Data Analysis

Convert the recording files into text information in time and import it into NVivo11.0 software to create nodes, encode, and refine the theme. The software can be used to re-categorize the data so as to compare different categories or different data, develop theories or concepts from them, or summarize the data into key themes for presentation. The Colaizzi's seven-step method of phenomenological analysis was used in further data analysis: 1) Familiar with the interview materials; 2) Analyze interview materials verbatim to identify meaningful expressions; 3) Construct meaning for recurring expressions; 4) After the coding is completed, the opinions are collected, and the theme prototype is gradually formed; 5) Describe the prototype of the theme in detail and add the original expression; 6) Construct the prototype or description of a similar theme to the final theme; 7) Feedback on the main structure to the participants for verification.^{26–28}

Results and Discussions

Sample Characteristics

The structure of the eight interviewees was relatively balanced and reasonable in terms of their gender, age, and educational level. To protect the privacy of the interviewees, the corresponding capital letters A to H were used to represent their real names (Table 1).

Interview Results

Using NVivo11.0 for open coding, the interview materials were decomposed and compared to form corresponding concepts and categories.²⁹ All the same or similar nodes were combined to form a tree-like node (nodes with clear logic and subordinate relationship).³⁰ According to the results of the interview data, the four domains of the pharmacist-patient relationship, psychological contract, medication adherence, and correlation were drawn. The corresponding themes were briefly shown in Figure 1 and the example sentences were listed in Table 2. By coding and classifying the interview materials, the following themes were extracted:

Theme 1: From the perspective of patients, the relationship between pharmacists and patients is harmonious.

Table 1 Demographics of Respondents

Number	Gender	Age	Education	Occupation
A	Female	33	Junior college	Kindergarten teacher
B	Female	21	Undergraduate college	College student
C	Female	22	Undergraduate college	College student
D	Male	49	Junior high school	Taxi driver
E	Female	44	Senior high school	Housewife
F	Male	41	Junior high school	Seller
G	Male	46	Junior high school	Self-employed
H	Male	39	Senior high school	Factory worker

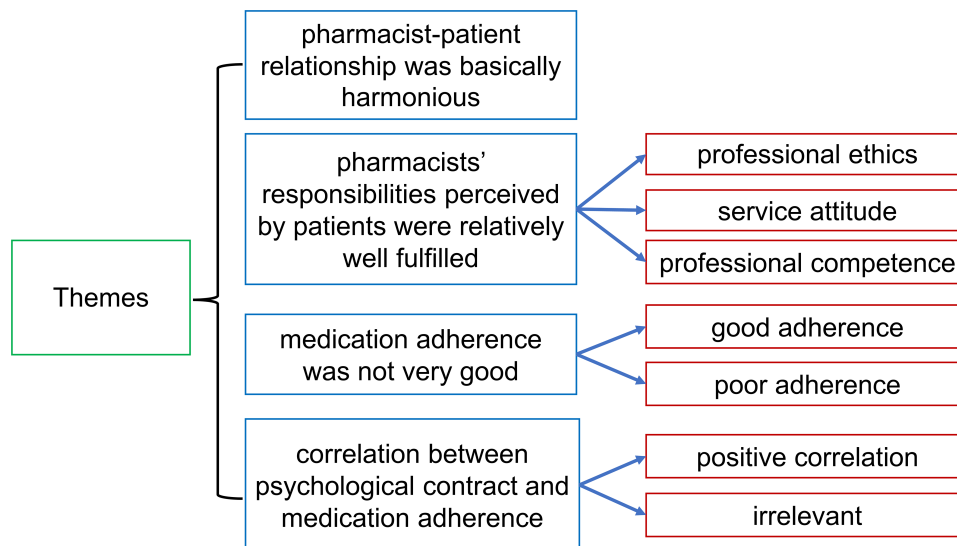


Figure 1 The themes extracted from the interview materials.

The results of the interview showed that from the perspective of most patients, the relationship between pharmacists as providers of medication service and patients as service receivers is relatively harmonious as a kind of relationship based on professional service. The outpatient pharmacy is usually the last step of the outpatients' visit in hospital, and the patients has not much contact with the pharmacists in pharmacies for outpatients except picking medicine and consulting about medication. Compared with the frequent disputes between physicians and patients, there are relatively fewer disputes between pharmacists and patients. The patients believed that the current pharmacist patient relationship problem was not as serious as some public media advocated.^{31,32} The factors that affect the pharmacist-patient relationship from the perspective of outpatients were mainly included the pharmacist making a mistake in distributing the drug, failure to guide the use of the drug, and the inappropriate communication between pharmacists and patients.

Theme 2: Pharmacists perform their duties relatively well.

From the perspective of the patient, most pharmacists fulfilled their responsibilities.^{33,34} The professional ability of most hospital pharmacists meet the expectations of patients, and pharmacists have professional knowledge of safe medication and are proficient in dispensing medication and other related businesses; Most pharmacists have a 9 kind attitude in pharmaceutical service and can patiently answer patients' questions and actively solve their problems about medication, while occasionally irritated due to temporary heavy workloads and peak medication; Almost all hospital pharmacists meet the expectations of patients for humanistic care: respecting the privacy of patients, not discriminating against patients, and giving patients some personalized care and encouragement.

Theme 3: The patients' medication adherence needs to be improved.

Most patients have low awareness of medication adherence. In the early stage of drug therapy, few patients intentionally stop or forget to take medication.³⁵ However, the persistence of the medication is not optimistic. Some patients said that they usually stop taking the medication by themselves due to the improvement of the disease or the significant drug treatment effect. A small number of patients stop taking the medication early due to adverse drug reactions already present or for the fear of potential adverse drug reactions. All the included agreed that medication adherence needs to be effectively improved from relevant aspects.

Theme 4: The psychological contract of outpatients with their hospital pharmacists may affect medication adherence; effective management on medication adherence should be multifaceted and purposefully involve the management on the patients' psychological contract with the hospital pharmacists.

Some patients believed that if the hospital pharmacists fully fulfil their responsibilities expected by the patient, a positive impact will be definitely exerted on medication adherence. For example, patients with poor medication

Table 2 Results of Qualitative Research

Domain	Themes	Illustrative Quotes
Pharmacist-patient relationship	Current status of the pharmacist-patient relationship	<p>"At present, we rarely hear about pharmacist-patient disputes, most of which are Physician-patient disputes. There are still some medical accidents, which are usually related more to physicians." [B]</p> <p>"I think the relationship between patients and pharmacists is relatively harmonious. After all, patients usually interact with pharmacists only in the step of taking medicines. Generally, if no dispensing error, there will be no disputes." [C]</p> <p>"Compared with the physician-patient relationship, I think the pharmacist-patient relationship is much better. After all, the job of a pharmacist is simpler than that of a physician, but it also requires careful attention." [G]</p> <p>"The relationship between pharmacists and us patients is still relatively good. Everyone has his own obligations and needs needs. I think that the current pharmacist is not so severe." [H]</p>
Patients' psychological contract with hospital pharmacists	Professional competence	<p>"It feels that they are distributing medicine quickly. I think they are more reliable than normal persons in society, and I haven't encountered any errors." [A]</p> <p>"Most pharmacists can accurately deliver medicines, and provide professional guidance when patients taking medicines. They explain in detail the usage when being asked." [D]</p> <p>"Pharmacists ever told to me that drinking alcohol is not allowed while taking some medicines. And they also told taking certain medicines before or after meals." [E]</p> <p>"Not only the usage and dosage, but many issues were also described very carefully. Some pharmacists may explain how to take medicines according to age, and who should pay attention to what problems." [H]</p>
	Service attitude	<p>"It feels that pharmacists are still more responsible for their customers than other professions, and the service attitude is good. They are relatively kind." [A]</p> <p>"The pharmacists are always very gentle to us patients. Maybe the pharmacists I met are more girls, and they are all nice." [C]</p> <p>"The pharmacists' attitude is relatively polite. I rarely come to the hospital, and the limited pharmacists I encountered were all nice with great patience and a gentle attitude. It was okay overall." [F]</p> <p>"The attitude is very good, most hospital pharmacists are very enthusiastic to ask their patients if they have any questions or if they don't understand their medication." [G]</p>
	Professional ethics	<p>"Pharmacists will not ask some questions about my privacy. I feel they are very professional." [B]</p> <p>"I feel that they are more friendly. They will repeat medication instructions to the elder patients for several times to remind them how to take the medicine." [E]</p> <p>"When pharmacists have relatively many patients, they usually have limited communication with patients because they are busy with drug dispensing. They will greet the patients when they are not too busy. Sometimes they are very caring for patients." [F]</p> <p>"They generally respect the patient, and will not discriminate against the patient for special diseases." [H]</p>
Patients' medication adherence	Poor medication adherence	<p>"Generally, when my condition improves after taking some medicine, I may not take the rest medicines as required. I may take the medicine as required and may take it again if the disease has not improved. So it depends." [D]</p> <p>"If my illness If my disease recovers early after taking some medicine, I will usually stop taking medicine. If the medicine is almost used up, and I haven't gotten better, I will ask the doctor and pharmacist for suggestions on further treatment. After all, I am not a professional." [F]</p> <p>"In the beginning, I will take it on time and in dosages as required. I will not take medicine when the disease is getting better. I occasionally forget to take medicine. I think that all medicines have toxic and side effects, and taking medicine is not always a good thing. You can stop taking it when you feel better." [G]</p> <p>"Sometimes I will stop taking the medicine in advance. If I don't get better or feel uncomfortable after taking medication, I will stop taking it. Of course, most of the time I follow the instructions of the pharmacists." [H]</p>
	Good medication adherence	<p>"I take them on time and in dosages as required. After all, sickness make me uncomfortable. Taking medicine in time will help me overcome the sick and back to work earlier. It is not a good thing to stay in a disease state, so I am more obedient to take medicine." [A]</p> <p>"After all, I am sick, and I should be responsible for myself. If it is a doctor's prescription, then I have to follow the instructions from the pharmacists. Once I take the medicine incorrectly, it is uncomfortable for me, and the pharmacist is more professional than us patients, so I will follow the instructions." [B]</p> <p>"I take my medicine according to the instructions from the pharmacists. The usage and dosage are prescribed. I will not take it according to my judgment because I don't understand all aspects of medication." [C]</p> <p>"I take it exactly as suggested by the pharmacists. They can give us the most direct instructions and help us avoid mistakes." [E]</p>

(Continued)

Table 2 (Continued).

Domain	Themes	Illustrative Quotes
Correlation between patients' psychological contract with hospital pharmacists and patients' medication adherence	Positive correlation	<p>"I think patients' psychological contract with hospital pharmacists has an impact on our medication adherence. If the pharmacist's professional ability is not as I expected, for example, if he doesn't know enough about the medicine and doesn't know how to take it, then his patients may take the wrong medicine or don't take medicine on time and in dosages, and there will be big problems." [A]</p> <p>"For me, it may be a bit of an influence. After all, if they have a bad attitude and haven't told me clearly, and in case I don't ask how to take it, I may not know much about the precautions." [D]</p> <p>"The attitude and ability of the pharmacists I met are relatively good, and they are all very careful to guide me. I will take the medicine according to their requirements, so I think that my impression on pharmacists positively affect my medication-taking behavior." [F]</p> <p>"If the pharmacist fails to fulfill his responsibilities and obligations, fails to meet my expectations, and fails to explain clearly the usage of the medication to me, I may not follow their suggestions strictly. However, I cannot use it according to my judgment. After all, I am not a doctor. So, I have to ask more medical professionals." [G]</p>
	Irrelevant	<p>"It (the patients' psychological contract with hospital pharmacists) will not affect my medication adherence. If they have a bad attitude, I may be a little angry at the time, but it will be OK after a while. After all, health is the most important thing, and you should take medicine consciously." [B]</p> <p>"I feel that the impact of patients' psychological contract with hospital pharmacists on medication adherence is not great. If you are not satisfied with their attitude and service, you can use it according to the instructions." [C]</p> <p>"The service attitude will not affect me. No matter how the attitude is, I will take the medicine on time. If his ability is not good, he did not tell me how to take the medicine. I can read the instructions by myself and take the medicine obediently." [E]</p> <p>"I don't think it will affect me. Even if the pharmacist is not as professional as I expected, I still have to take medicines on time and in dosages because the health is my own duty." [H]</p>

Notes: A–H represents 8 outpatient pharmacy patients who participated in the qualitative study anonymously.

adherence (such as D, F, G) believed that the extent of the patients' perceived expectations to hospital pharmacists being fulfilled by hospital pharmacists (that is, expressed in professional terms, maintaining status of patients' psychological contract with the pharmacists) is positively related to medication adherence. The better performance of the pharmacists' professional technical ability, pharmacy service responsibility, and humanistic care responsibility will encourage patients positively follow the professional medication guide and thus exerting a certain positive impact on medication adherence. Some patients believed that whether their hospital pharmacist fully fulfils their responsibilities expected by their patients will not affect medication adherence. They thought that only patients' cognition on their diseases and the importance they attach to self-health will influence their medication adherence. Interestingly, patients with good medication adherence (such as B, C, E) considered the patients' psychological contract with the pharmacists is not related to medication adherence.³⁶

With the increasing attention paid to the theory of psychological contract by the academic community, the importance and value of psychological contract has been widely recognized by all sectors of society. The psychological contract does not only exist within the organization, it may exist in all kinds of social relationships. The relationship between hospital pharmacists and their patients is very important topic in hospital pharmacy administration and management of rational medications use but not studied thoroughly.³⁷ The issues about psychological contract existed in pharmacists-patients relationship are deserved to be investigated by researchers in related areas.

The call for change in the pharmaceutical service, which began with the evolution of clinical pharmacy and continued with the introduction of pharmaceutical care practice in the 1990s, is still proving to play an important part for the pharmacy profession. Nowadays, hospital pharmacists who are willing to make contributions and achievements professionally must participate in the health care system as care providers, not just medication dispensers. Hospital pharmacists have the responsibility and obligation to make efforts on their service to improve their patients' medication adherence. The barriers to medication adherence are complex and diverse, thus the efforts to improve adherence must be multifaceted.^{10,38,39} This qualitative study confirmed the positive effects of outpatients' psychological contract with their hospital pharmacists on medication adherence preliminarily

demonstrated by the former questionnaire survey.¹⁸ According to the patients' opinions, management on patients' psychological contract with their hospital pharmacists, especially for those patients with poor medication adherence, can be taken as a useful measure for management on medication adherence.

Limitations

The analysis of the interview data is based on NVivo11.0 and the 7-step analysis method of Colaizzi phenomenology. The seventh step of the 7-step analysis method of Colaizzi phenomenology is not implemented in this study: return the main structure extracted from the interview data to the participants for verification. Due to the particularity of the interviewees (high mobility of patients in outpatient pharmacies) and the principle of voluntariness, no relevant personal contact information was obtained, which made it impossible to verify the results of the interview with patients. The information about illness and medication-related characteristics would indicate the types of patients and may be the important factors related to patients' medication adherence. Unfortunately, we did not collect disease information and medication information related to outpatients in the formal investigation. We ever included the patient's medical frequency, disease severity, medication type and patient's income in the pre-interview. However, with a relatively large population mobility, most outpatients are generally unwilling to be asked for personal privacy involved questions. Therefore, in order to ensure the feasibility of the investigation and focus on the research purpose, we only reported gender, age, education level and occupation as the main demographic data of the patients. Multiple factors, not only knowledge and behaviors of patients, but also the role of medical professionals, may influence patients' medication adherence. In this study only the pharmacists' role in medication adherence was focused on. The role of other medical professionals such as doctors and nurses and their combination effect with the pharmacists' role should be studied.

Conclusion

Half of included outpatients think that patients' psychological contract with hospital pharmacists can have positive effect on medication adherence, and that the patients with better status of psychological contract are more likely to adhere to agreed prescription. Management on psychological contract of the outpatients with their pharmacists may be an effective means to improve medication adherence. Efforts should be made by hospital pharmacists and related sectors to maintain or improve the patients' psychological contract with their pharmacists, while patients' awareness of their own responsibility and medication adherence should be also improved substantially.

Ethical Approval

The study was approved by the Medical Ethics Committee of Zunyi Medical University, China (ZMCER2018-1-153) and conducted following the Declaration of Helsinki. Through the explanation work at the investigation site, all the patients involved in the investigation clearly understood the purpose of the study. Participation in the study was voluntary and anonymous. Written informed consent was obtained and the participants informed consent included publication of anonymized responses.

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Disclosure

The authors report no conflicts of interest in this work.

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