



The correlations of interpersonal communication pharmacists with compliance medication in patient of diabetes mellitus type 2

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ABSTRACT

Drug compliance is often associated with interpersonal relationships. Good interpersonal relationships depend on how interpersonal communication is established. This study aims to identify the relationship between interpersonal communication of pharmacists and drug compliance of Type 2 Diabetes Mellitus (DM) outpatients and identify the most dominant interpersonal and communication factors influencing drug compliance and its external factors. The samples of this study were patients who met the inclusion criteria. Data were obtained from questionnaires, observations, and medical records. The data were tested for validity and reliability using univariate analysis, bivariate analysis using chi-square, and multivariate analysis using multiple logistic regression. The results of the study showed characteristics that affect drug compliance are DM drugs used and the number of drugs received. The results of bivariate analysis p -value of < 0.05 mean there was a relationship between the interpersonal communication of pharmacists (openness, empathy, supportive behavior, positive behavior, and equality) and drug compliance of Type 2 DM outpatients at RSUD Jaraga Sasameh. The most dominant interpersonal communication factor was positive behavior with an $\exp(B)$ value of 16.013. External factors affecting were supporting facilities, and time.

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ABSTRAK

Kepatuhan minum obat seringkali dikaitkan dengan hubungan interpersonal. Hubungan interpersonal yang baik tergantung bagaimana sebuah komunikasi interpersonal dibangun. Penelitian ini bertujuan untuk mengetahui hubungan komunikasi interpersonal apoteker dengan kepatuhan minum obat pasien DM Tipe 2 rawat jalan, mengetahui faktor komunikasi interpersonal paling dominan dan faktor eksternal yang mempengaruhi kepatuhan minum obat. Sampel adalah pasien yang memenuhi kriteria inklusi. Data diperoleh dari pengisian kuesioner oleh pasien, observasi dan rekam medik. Kuesioner sebelum digunakan untuk pengambilan data di uji validitas dan reliabilitas. Data yang diperoleh dari kuesioner kemudian dianalisis univariat, bivariat menggunakan *chi square* dan multivariat menggunakan regresi logistik berganda. Hasil penelitian menunjukkan karakteristik yang mempengaruhi kepatuhan minum obat yaitu obat DM yang digunakan dan jumlah item obat yang diterima. Hasil menganalisis bivariat angka $p < 0,05$ maknanya ada relasi diantara komunikasi interpersonal apoteker (keterbukaan, empati, tingkah laku suportif, tingkah laku positif serta kesetaraan) dengan ketaatan minum obat pasien DM Tipe 2 rawat jalan pada RSUD Jaraga Sasameh. Hasil analisis multivariat faktor komunikasi interpersonal paling dominan adalah perilaku positif dengan nilai $\exp(B)$ sebesar 16,013. Faktor eksternal yang mempengaruhi adalah sarana penunjang, dan waktu

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INTRODUCTION

Diabetes mellitus (DM) is a chronic disease that can lead to serious complications, in which its severity depends on how well the patient takes medication. Data from the International Diabetes Federation (IDF) shows that Indonesia is in fifth place with 19.5 million people with diabetes ⁽¹⁾. The prevalence of *diabetes mellitus* in the South Barito district is based on doctors' diagnoses of 1.05% of the population of all ages and the prevalence of people aged > 15 years in the South Barito district is 1.46% ⁽²⁾.

The level of patient adherence to taking medication greatly affects the condition of the disease. Medication adherence is an important part of treatment, this is because medication adherence is an attempt to achieve the success of therapy. If therapy fails it will increase the severity of the disease suffered by the patient. Patient adherence to taking medication is often associated with interpersonal relationships between patients and individuals around them, especially pharmacists.

Interpersonal relationships between pharmacists and patients can encourage type 2 DM patients to take medication. Compliance with taking medication is influenced by knowledge, income, amount of medication, interpersonal relationships, and awareness. Research conducted by Srikartika ⁽³⁾ at the Regional Public Service Board of the Banjarbaru City Hospital shows that out of 48 respondents, only 39.6% were properly taking medicine. The results of another study showed that out of 884 respondents, only 440 people (49.8%) were included in the obedient category ⁽⁴⁾.

A good interpersonal relationship depends on how by communicants and communicators build an interpersonal communication ⁽⁵⁾. The researchers initially observed Jaraga Sasameh Hospital for type 2 DM outpatients once a month. When taking medicine, there were patients who took it themselves while others were accompanied by their families. Drugs are delivered by the pharmacist and the counseling time is ≤ 5 minutes.

Based on these descriptions, type 2 DM is causes mortality in Indonesia. Hence, adherence to medication is very important to ensure that patients achieve their therapeutic targets. Drugs are delivered by pharmacists so that frequency of interpersonal communication between pharmacists and patients often occurs.

Interpersonal communication will influence the beliefs of type 2 DM patients to comply with taking medication to achieve the goals of type 2 DM treatment, which is getting type 2 DM patients to take medication at the Jaraga Sasameh Hospital and the dominant factors influencing it.

METHOD

MATERIALS. The materials is all patients or families of outpatient Type 2 DM patients at the Jaraga Sasameh Hospital in April-June 2022 who meet the inclusion criteria, observation data, answers through questionnaires that have been tested for validity and reliability and medical record data of Type 2 DM patients' outpatient.

METHOD. Types of research. The following research is explanatory research in nature, which aims to explain the relationship between pharmacist interpersonal communication (openness, empathy, support, positivity, equality) and medication adherence in type 2 DM patients. The research was carried out using a cross-sectional design,

namely the research was carried out at one time. The following research has obtained a research ethics agreement (ethical clearance) from The Health Research Ethics Committee (KEPK) of the Health Polytechnic of the Ministry of Health of Palangkaraya number 137/IV/KE.PE/2022.

Data Collection. Data collection is done in three ways. First, the data was taken by distributing questionnaires to type 2 DM patients or the patient's family who routinely carry out examinations and therapy. Second, the collection of supporting data from the patient's medical record, and the third, data collection is done by observation.

Data analysis. The data in this study were analyzed by univariate to find out the frequency distribution of respondents, bivariate analysis to find out whether there is a relationship between pharmacist interpersonal communication (openness, empathy, supportive behavior, positive behavior and equality) with patient medication adherence using statistical tests chi square. Multivariate analysis was used to look at the most dominant factors influencing medication adherence in Type 2 DM patients.

RESULTS AND DISCUSSION

Validity and Reliability Analysis

The validity of the questionnaire used was tested using the *Pearson bivariate correlation SPSS* (Pearson Moment Product). Measuring tools or questionnaires can be known to what extent the precision and accuracy by using reliability testing. Testing the reliability used is *Cronbach's Alpha*. Results Test the validity and reliability of the questionnaire used in this study showed the results for testing the validity of the value of $r_{count} > r_{table}$ (significance 5% = 0.113-0.138), it can be concluded that the questionnaire is valid. The results of the reliability test for both questionnaires had a *Cronbach's alpha score* ≥ 0.7 so that it could be concluded that all questionnaire items were reliable.

Characteristics of Respondents

Respondents in the following research were 287 respondents. Patient characteristics in this study included age, education level, occupation, comorbidities, oral DM drugs used and the number of drug items received. The results of the study are shown in table 1, most respondents who suffer from Type 2 DM outpatient at Jaraga Sasameh Hospital are aged 30-59 years (72.8%). According to the IDF, Indonesia is in second place out of the top five countries with the number of DM sufferers reaching millions at the age of 20-79 years. Type 2 DM can occur from a young age, it is influenced by an unhealthy lifestyle ⁽¹⁾. Type 2 DM is often found at the age of 30 and is increasingly found at the age of 40, aging causes a decrease in the ability of pancreatic beta cells to produce insulin ⁽⁶⁾.

Education of the most respondents that is low level (57.8%), education is often associated with awareness to maintain health and avoid trigger factors for Type 2 DM. People with higher education have more knowledge about health so that people with higher education have a deeper level of awareness maintain health ⁽⁷⁾

The occupation of the most respondents in the following research was the private sector (28.2%), work related to the amount of physical activity carried out. Physical activity has an effect on increasing insulin so that glucose levels in the blood are reduced. People who have light physical activity

have a 4.36 times greater risk of experiencing Type 2 DM compared to people who have moderate and heavy activities.⁽⁸⁾

94.4% of respondents had co-morbidities, co-morbidities increased the cost of treatment, and the number of drug items that had to be used. Co-morbidities can also reduce the patient's motivation to seek treatment, this causes the patient to be non-compliant. Patient non-compliance will worsen their health condition⁽⁹⁾.

oral DM drugs used in the following research were monotherapy (56.4%) and the number of drug items received by patients was at most > 4 drugs (59.6%)%. The number of DM drugs and other drugs used can affect patient medication adherence. Patients who are prescribed 1 to 2 drugs are more compliant than patients who are prescribed more than 2 drugs⁽¹⁰⁾

Relationship between Characteristics and Medication Compliance

An analysis of the relationship between patient characteristics and medication adherence using the *chi square statistical test* as shown in table 2 the oral DM drugs used and the number of drugs received have a *p number* < 0.05, which means that there is a significant relationship to medication adherence for patients.

Chi square statistical test results the characteristics of the oral DM drugs used affect medication adherence in line with research by Jasmine⁽¹¹⁾ which revealed that there was a significant relationship between oral DM drugs used by patients and medication adherence in Type 2 DM patients. Patients who received monotherapy in this study were more adherent than patients who received combination therapy. The number of drugs received affects adherence also according to research carried out by Ningrum⁽¹²⁾ and Putri⁽¹³⁾ which states that there is a significant relationship between the number of drug items received and medication adherence in Type 2 DM patients. The number of DM drugs and other drugs used can affect patient medication adherence. Patients who were prescribed 1 to 2 drugs were more compliant than patients who were prescribed more than 2 drugs⁽¹⁰⁾. The number of drug items received according to doctor's recommendations can be one of the obstacles to adherence to taking medication, the following items relate to the number of drugs that patients receive.

Patient characteristics including age, education level, co-morbidities, occupation did not have a significant relationship with adherence to taking medication in outpatient type 2 DM patients at Jaraga Sasameh Hospital because the *p value was* > 0.05.

Univariate analysis

Question To measure the effectiveness of pharmacist interpersonal communication on outpatient type 2 DM patients at Jaraga Sasameh General Hospital, 5 items were arranged for each variable (openness, empathy, supportive behavior, positive behavior and equality). The elaboration of question items can be seen in table 3, table 4, table 5, table 6 and table 7.

Openness. It is hoped that open communication will not cover up anything. Open behavior encourages the emergence of mutual respect and develop interpersonal relationships. Respondents answered "Yes" open communication made by pharmacists was clear and understandable as much as 95.1%. During counseling, the pharmacist speaks clearly, uses language that the patient can understand and also writes

down the time to take the medicine on the label so that it is easier for the patient to remember when to take the medicine. As many as 79.1% of respondents answered "Yes". Pharmacists are open to explaining information on the treatment of Type 2 DM clearly.

Respondents answered "Yes" pharmacists were willing to provide solutions related to complaints submitted by patients as much as 84.3%, open pharmacist communication made patients more obedient to taking Type 2 DM medication as much as 80.5%. Complaints submitted in this study based on observations were a feeling of discomfort in the stomach after taking diabetes medication, namely metformin, besides that often patients also complained of feeling weak after taking diabetes medication. Pharmacists help provide solutions related to patient complaints by informing them that the medicine is taken after eating to avoid stomach discomfort and weakness.

Empathy. Respondent answered "Yes" pharmacists appreciate and focused concentration when communicating as much as 98.3%. The pharmacist's behavior when delivering counseling focuses only on the patient, the pharmacist does not carry out other activities as long as the counseling with the patient is not finished. Pharmacists respond when patients ask questions as much as 96.9%. During the counseling session, patients in this study asked how to take medication, especially during the fasting month. After counseling, if something is still not understood, the patient will usually ask the pharmacist again. The pharmacists in this study responded to all questions asked by patients, such as answering how to take DM medication during fasting.

The pharmacist asked for complaints after taking the medicine as much as 87.8%, during the counseling the pharmacist would ask if there were any complaints while taking the DM medicine. matter ii is carried out in order to provide certainty that the drug used by the patient is correct, in accordance with counseling guidelines where pharmacists must find out information regarding potential problems that may be found during treatment. Pharmacists show empathy towards patient complaints as much as 86.8%. The pharmacist empathy in this study was shown by understanding, accepting and listening to all complaints submitted by patients. Pharmacists understand and motivate in dealing with treatment as much as 88.2%. An understanding and motivating attitude is shown by pharmacists by helping patients to get rid of fear and anxiety related to Type 2 DM and the treatment that will be undertaken. Pharmacists assure that adherence to taking medication will make health conditions much better.

Supportive Behavior. 98.3% of respondents who answered "Yes" showed politeness when patients were complaining. Pharmacists treat patients with respect when communicating as much as 94.4%. Pharmacists showed enthusiasm when communicating as much as 88.5%. Polite and respectful attitude is shown by the pharmacist by focusing on looking at the patient while communicating. Grammar and facial expressions also describe the pharmacist's polite and respectful attitude when communicating with patients. Pharmacists show their enthusiasm when communicating by giving directly *feedback* or feedback to patients, so patients feel pharmacists really care about their health conditions.

Pharmacists respect patient opinions when communicating as much as 95.5%, during counseling patients often give opinions from their point of view. The pharmacist in this condition lets the patient express his opinion first so that the patient feels respected, after the patient has finished

expressing his opinion then the pharmacist responds by using polite language and also does not corner the patient. Pharmacists provided support by explaining healthy lifestyles as much as 88.9%. The pharmacist explains how to eat a good and balanced diet for diabetics, this is to keep blood sugar levels under control.

Positive Behavior. Respondents who answered "Yes" counseling conducted by pharmacists can increase their confidence to comply with taking medication by as much as 90.9%. Counseling carried out by pharmacists made patients feel calm about carrying out treatment by 94.8%, respondents believed the information provided by pharmacists was correct and could be trusted by 97.6%. The information conveyed by pharmacists can increase patient confidence to comply with taking medication because the information provided is obtained from reliable literature and not based on pharmacist opinion. Clear literature and good pharmacist competence make patients feel calm about taking their medication.

The pharmacist's attitude and appearance helped to encourage the enthusiasm to undergo treatment as much as 84.3%. The pharmacist's attitude and appearance helped the patient to feel calm and comfortable while undergoing treatment as much as 87.8%. Physical appearance is one of the first things a patient pays attention to when meeting health workers, especially pharmacists. A neat and polite appearance certainly makes the patient comfortable and of course believes that the person communicating with him is a competent pharmacist.

equality. Respondents who answered "Yes" greeted and greeted the pharmacist when the patient arrived as much as 85.7%, pharmacists showed a sense of togetherness as a family not as health workers as much as 88.9%. As many as 75.6% answered "No" to the question whether the pharmacist showed that he was smarter than the patient. 94.4% answered "Yes" felt comfortable with the pharmacist's speaking style when doing counseling, and 86.1% discussed and discussed together all the problems they would face during treatment.

Equality is shown by pharmacists by creating friendly conditions. This atmosphere affects the patient's mood so that they feel comfortable and trusting. During the counseling the pharmacist discusses what needs to be known and listens intently to every conversation conveyed by the patient, just like family

The results of the frequency distribution after being categorized as pharmacist interpersonal communication when delivering counseling as shown in table 8 there is openness (87.8%), there is empathy (91.6%), there is supportive behavior (94.4%), there is positive behavior (92, 7%), and there is equality (86.8%). Transparency in this study, namely a pharmacist must be willing to help patients to understand the drugs that are accepted openly explain the information on the treatment Information during counseling provided by pharmacists in this study was the same as research that had been conducted by Fatiha and Sabiti ⁽¹⁴⁾ where the information provided included how to use drugs, dosages, indications, side effects of drugs, time of use and how to improve lifestyle. Obstacles in providing pharmacist counseling can be overcome by being open and ready to help patients. Open and intensive communication can be one way to improve medication adherence ⁽¹⁵⁾.

Empathic behavior is shown by pharmacists through respect, listening to complaints and also focusing attention on patients while communicating ⁽¹⁶⁾. An understanding and motivating attitude is shown by pharmacists by helping patients to get rid of fear and anxiety related to Type 2 DM

and the treatment that will be undertaken. Pharmacists assure that adherence to taking medication will make health conditions much better. Showing empathy means the communication that the pharmacist goes with good ⁽¹⁵⁾.

Pharmacists apply supportive behavior by being willing to listen, respect, show enthusiasm when patients are communicating and provide support by explaining healthy lifestyles. Dietary settings that must be emphasized in diabetic patients are schedule, amount and type ⁽¹⁷⁾.

Interpersonal communication will be successful if there is positive behavior. Communication can be well maintained if a positive feeling for another individual is conveyed ⁽¹⁸⁾. Indicators of a person's positive behavior are discipline at work, like to work hard, be honest at work, and have high responsibility for the work done ⁽¹⁹⁾. Patients will have a good sense of trust in pharmacists who have positive behavior. Patients certainly want to be served by pharmacists who are friendly and have a positive outlook. The basic principle of communication in counseling is that there is a relationship between the patient and the pharmacist, so there is a change in the patient's behavior by means of a voluntary relationship between the patient and the patient. The approach model that needs to be considered from the " *helping model* " approach is the existence of an equal relationship (such as friends) ⁽¹⁵⁾.

Effective interpersonal communication when there is equality that exists between the communicator and the communicant. The two people who communicate must mutually respect each other in order to bring out the nature of balance between individuals in order to construct a feeling of comfort and similarity in communicating ⁽²⁰⁾. Equality is shown by pharmacists by creating friendly conditions. This atmosphere affects the patient's mood so that they feel comfortable and trusting

Bivariate Analysis

The results of bivariate analysis using *chi square* as shown in table 9, interpersonal communication factors (openness, empathy, supportive behavior, positive behavior, and equality) have a *p value* <0.05 which means that there is a significant relationship between the five interpersonal communication factors of pharmacists on medication adherence in Type 2 DM outpatients at Jaraga Sasameh Hospital.

The RR (*Relative Risk*) value for openness was 1.512 (95% CI = 1.089-2.101) meaning that outpatient Type 2 DM patients who received openness from pharmacists when conducting interpersonal communication had 1.5 times the opportunity to adhere to taking medication compared to patients who did not receive openness . Openness creates an attitude of mutual trust, mutual understanding and respect. Openness is seen from the interaction between pharmacists and patients when providing explanations and understanding of the drugs received ⁽²¹⁾.

RR values for empathy was obtained 1.684 (95% CI = 1.085-2.615) meaning that outpatient Type 2 DM patients who get empathy from pharmacists when conducting interpersonal communication have 1.7 times the chance to obey taking medication than patients who do not get empathy. Empathy can be communicated verbally as well as non-verbally. Non-verbally empathy can be demonstrated by active involvement with the patient through facial expressions, gestures, focused concentration including eye contact ⁽²²⁾. The existence of empathetic behavior makes pharmacists able to understand and also motivate patients to adhere to taking medication.

The RR value for supportive behavior was 1.611 (95% CI = 1.023-2.535) meaning that outpatient Type 2 DM patients who received supportive behavior from pharmacists during interpersonal communication had 1.6 times the chance to comply with taking medication compared to patients who did not receive this behavior. Supportive behavior is the behavior of supporting others by being descriptive not evaluative⁽²³⁾. Supportive behavior when conducting interpersonal communication can increase the patient's enthusiasm to adhere to taking medication because the patient will feel cared for during the treatment process.

The RR value for positive behavior was 4.145 (95% CI = 1.712-10.032) meaning that outpatient Type 2 DM patients who received positive behavior from pharmacists when conducting interpersonal communication had a 4.1 times chance to comply with taking medication compared to patients who did not receive this behavior. Positive behavior creates positive feelings that can change the patient's mindset towards the disease and can increase the patient's self-confidence to comply with taking medication⁽²²⁾.

The RR value for equality was 1.403 (95% CI = 1.046-1.882) meaning that outpatient Type 2 DM patients who received equality from pharmacists when conducting interpersonal communication had 1.4 times the chance to comply with taking medication compared to patients who did not get equality. Effective interpersonal communication when there is equality that exists between the communicator and the communicant. Equality in interpersonal communication, that is, there are similarities in terms of sending and receiving messages⁽¹⁸⁾.

The attitude of equality is where the pharmacist thinks that patients have the same equality so that the pharmacist discusses and discusses together all the problems that will be faced during treatment. This attitude of equality will make patients feel comfortable and calm in carrying out the treatment of type 2 DM that they are undergoing.

Multivariate analysis

Factor that most dominantly influences medication adherence in outpatient type 2 DM patients at Jaraga Sasameh General Hospital can be determined using multivariate analysis, namely multiple logistic regression. The results of the initial analysis of the equivalence variable have a *p value* > 0.05 so that the multivariate process is continued by removing the equivalence variable.

The results of multiple logistic regression analysis as shown in table 10 of the variables that have the most influence or are most dominantly related to medication adherence in Type 2 DM patients at Jaraga Sasameh General Hospital are positive behavior. The exp value (B) of positive behavior is 16.013, this indicates that the positive behavior variable has a significant relationship to patient medication adherence. Positive views and feelings about oneself will also lead to positive patterns of interpersonal communication. Positive behavior was shown by pharmacists when providing counseling to outpatient Type 2 DM patients at Jaraga Sasameh Hospital. Positive behavior is applied by pharmacists through their attitude and appearance, through this attitude and appearance they help patients to be calm and comfortable in taking medication. Positive behavior is an interpersonal skill that must be possessed by health workers⁽²⁴⁾.

Patients certainly want to be around health workers, especially pharmacists who are friendly and have a positive outlook, by developing positive interpersonal relationships

between pharmacists and patients, counseling can be fun and easy to accept.

External Factors

Based on the results of observations at the outpatient pharmacy at Jaraga Sasameh Hospital, external factors that can affect interpersonal communication relationships with patient medication adherence are the absence of supporting facilities and the limited time to communicate or deliver counseling by pharmacists to patients. To carry out effective interpersonal communication during counseling should not only carried out at the counter when handing over the drug, but in a special room for counseling and also using tools such as counseling guides, patient cards, brochures and others⁽¹⁵⁾. Limited time and long queues at health care centers result in the interaction of pharmacists and sufferers being constrained⁽²⁵⁾.

CONCLUSIONS AND SUGGESTIONS

Characteristics that affect adherence to taking medication in outpatient DM patients, namely the DM drugs used and the number of drug items received. There is a relationship between interpersonal communication of pharmacists and adherence to taking patient medication, the most dominant interpersonal communication factor influencing adherence is positive behavior and external factors that influence are supporting facilities, and time u.

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