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Failure of Group Therapy Method for Medication adherence of Diabetes Mellitus Patient

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ABSTRACT

The global prevalence of diabetes in adults aged 20-79 is estimated to be 8.8% of the total world population in 2015 or around 415 million. Interestingly, more than half (56%) of all diabetics in the world are found to live in the Southeast Asia Region and the Western Pacific Region. North Maluku Province is one of the regions in Indonesia with a fairly large prevalence of diabetes mellitus sufferers of 1.1%. This study aims to understand deeply how group therapy fails to explore adherence to a medication of diabetic Mellitus patients in Ternate City. This research is descriptive qualitative research while The subjects of this study were patients in the diabetes centre, Ternate City. The research steps include; collect data by making observations, interviews, Focus Group Discussion, and documentation then the researcher analyzes by categorizing the data obtained, synthesizing, and organizing into patterns, then determining what is important to learn and finally, making conclusions. Our findings, states that no significant difference between the pre and post-test therapy group to medication adherence (P-value > 0.05) and the respondent's characteristic variables also have no significant Correlation with medication adherence (p-Value> 0.05). However, there are differences in quantitative data in the variables studied on a small scale, that is, there is an increase in each of the variables. The Weakness of this study is that the study was only conducted for 3 months so it could not profoundly change behaviour in diabetic patients.

Keywords
Diabetes Mellitus, Adherence, Group Therapy, Medication

Introduction

Globally, the prevalence of diabetes among adults has increased from 108 million people in 1980 to 422 million in 2014. The most remarkable increases were in East and South Asia, and in 2014, the highest numbers of people with diabetes were found in both regions (NCD Risk Factor Collaboration (NCD-RisC), 2016)(International Diabetes Federation, 2013). The global prevalence of diabetes in adults aged 20-79 is estimated to be 8.8% of the total world population in 2015 or around 415 million. Interestingly, more than half (56%) of all diabetics in the world are found to live in the Southeast Asia Region and the Western Pacific Region (Ogurtsova et al., 2017).

It is estimated that in 2035 the number of diabetes mellitus patients will increase to 592 million people (International Diabetes Federation, 2013), the important thing is, 175 million of them have not been diagnosed so that they are threatened with progressive development into complications without realizing it and without prevention (Kementerian Kesehatan, 2014). It is recognized that undiagnosed diabetes is an important problem (World Health Organization, 2011). factors such as urbanization and lifestyle changes are thought to be the main reasons for the increase in diabetes (WHO, 2013)(Chan et al., 2009), which now presents significant challenges to developing countries (World Health Organization, 2011)(WHO, 2013)(Low, Lee, & Samy, 2015). In line with this shift, the incidence of diabetes is expected to continue to increase every year. In Indonesia, the prevalence of diabetes in urban areas has reached 6.2% (International Diabetes Federation, 2017), and uniquely women are the population most vulnerable to diabetes compared to men (Riskesdas, 2013).

Adults with type 2 diabetes are often prescribed several drugs to treat hyperglycemia, hypertension, dyslipidemia, and other comorbidities. Medication adherence is an important determinant of medication success in patients with chronic disease. For those with diabetes, adherence to medication is associated with success achieving moderate risk (Asche, LaFleur, & Conner, 2011)(PLADEVALL et al., 2004)(Ho, Magid, Masoudi, McClure, & Rumsfeld, 2006)(Bogner, De Vries, O'Donnell, &

Morales, 2013), lower likelihood of hospitalization (Ho et al., 2006)(Juarez, Tan, Davis, & Mau, 2013)(Hong & Kang, 2011), lower health care costs (Juarez et al., 2013)(Hong & Kang, 2011)(Breitscheidel, Stamenitis, Dippel, & Schöffski, 2010)(Jiang, Babazono, & Fujita, 2020), and lesser mortality (Ho et al., 2006)(Hong & Kang, 2011).

In recent years, group therapy has been used by some researchers to determine the effect of this method on adherence, for example, the Socialization Ability of the Elderly (Jama, 2018), moral reasoning, exploration of adherence to Diverse Ethnic Adolescents (Paone, Malott, & Maldonado, 2008), Reducing Student Anxiety Facing Exams (Arizona, Nurlela, & Jannati, 2019).

Group therapy is a type of therapy that is applied to a group of 5-12 patients together by doing certain activities to change maladaptive behaviour into adaptive behaviour (Keliat, Anna, Akemat, & Ester, 2012). In addition, group therapy can help improve socialization between people.

Estimates of adherence to diabetes medication vary widely depending on the population studied and how adherence is defined. One study found that adherence to oral anti-diabetic agents ranged from 36% to 93% and adherence to insulin 63% (CRAMER & OBJECTIVE—, 2004).

This study was conducted based on some of the previous study results which still did not explain in detail the role of group therapy in the medication of diabetes mellitus medication. This research is also attempted to reveal why group therapy tends to fail and is not effective in diabetes mellitus medication.

Methods

The research design was quasi-experimental with a pre and post-test design without a control group. In this study, there was no control group (comparison) but a first observation (pre-test) was carried out which allowed the researcher to test the changes that occurred after the intervention (program) (Notoatmodjo, 2005). Measurement of Diabetes Mellitus patient adherence to medication was carried out before and after receiving intervention in the form of the application of the Group Therapy method and obtaining mutually agreed procedures. The pre and post-test research design without control group can be seen in the following scheme:

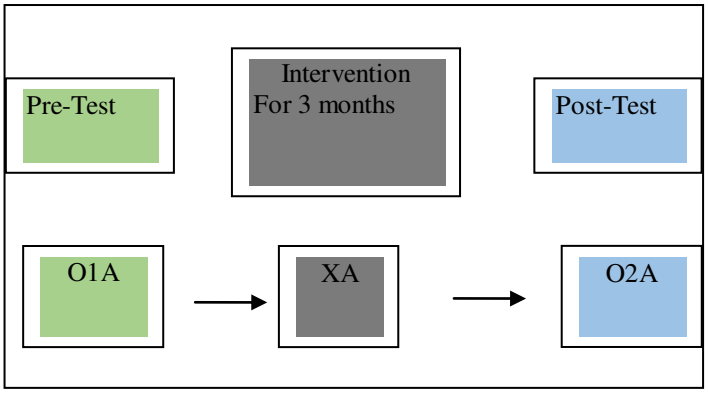

Figure 1: Research Scheme (Notoatmodjo, 2005)

This research was conducted in the area of the Diabetes Center, Ternate City. The study population was all Diabetes Mellitus patients in the City Diabetes Center totalling 172 people. The sampling technique in this study used simple random sampling. Meanwhile, The sample used was Diabetes Center patients who routinely visited during the last 3 months. Based on the calculation results, the sample in this study was 40 people. Instruments or data collection tools in this study using a questionnaire and the adherence of diabetes mellitus patients was measured by using the MMAS-8 questionnaire (Modified Morisky Adherence Scale-8).

The study began by measuring the level of medication adherence, then gave group therapy to the respondents, and ended by measuring the level of adherence again. Group therapy is an activity aimed at a group of clients which has the aim of being able to provide therapy for all members in the group.

Researchers used two analyzes, namely univariate and bivariate. Univariate analysis to describe the variable characteristics of the respondents. Meanwhile, bivariate analysis is intended to answer the research objectives and test the

research hypothesis. To determine the difference between the dependent variable pre and post-test, the researcher used the t-dependent test and to see the relationship between the variable characteristics and Adherence used the Chi-Square test. The data were then analyzed using a computer program with an error rate of α = 0.05.

Results and Discussions

The results of Univariate Analysis

Table 1 Characteristics of the study population by adherence status

Patient Factors		Adherent		Non-Adherent		Total %
		Total	%	Total	%	
Patient Age Group (Years)	<55	4	10	10	25	14 (35)
	55-65	3	7.5	5	12.5	8 (20)
	>65	6	15	12	30	20 (45)
Patient Sex	Female	9	22.5	20	50	29 (72,5)
	Male	4	10	7	17.5	11 (27,5)
Patient Education	Elementary	3	7.5	5	12.5	8 (20)
	Junior High School	4	10	7	17.5	11 (27,5)
	Senior High School	6	15	15	37.5	21 (52,5)
History of the Disease (Years)	<5	8	20	14	35	22 (55)
	5-9	4	10	7	17.5	11 (27,5)
	>10	1	2.5	6	15	7 (17,5)

It is known, 45% of respondents were elderly> 65 and 72.5% were female, The educational background of most respondents was Senior High School (52.5%). Most of the respondents who suffered from Diabetes Mellitus for a long time were <5 years (55%). The most length of time undergoing medication was> 3 years (45.0%).

The results of the bivariate analysis are as follows:

Table 2 Effect of medication adherence before and after group therapy

Adherence	Mean	SD	SE	*P-value*	N
Before	5,83	1,693	0,268	0,814	40
After	5,90	1,865	0,295		

The average adherence to taking medication before the application of group therapy was 5.83 with a standard deviation of

1.693 and after the application of group activity therapy was 5.90 with a standard deviation of 1.865. It can be seen that the mean difference between before and after is 0.07 with a standard deviation of 0.172. The statistical test results obtained a value of 0.814, it can be concluded that there is no effect of group therapy on medication adherence in diabetes sufferers.

Table 3
Chi-Square Test Results

No	Variable X	Variable Y	*P-Value*
1	Age	Medication adherence after group therapy	0,907
2	Sex	Medication adherence after group therapy	0,566
3	Education	Medication adherence after group therapy	0,855
4	History of Disease	Medication adherence after group therapy	0,526

There was no significant correlation between age, sex, education and history of disease on medication adherence after group therapy with a p-value of 0.907, respectively; 0.566; 0.855; 0.526.

Characteristics of Respondents with Adherence to Medication

Our findings suggest that patients aged over 65 tend to be more adherent to medication than younger patients. This is also explained in several studies which state that patients aged 25-44 years are less likely to be adherent when compared to patients aged 45-64. Patients aged 65-74 were more likely to be adherent, and those aged 75 and over were more likely to be adherent than those aged 45–64 (Kirkman et al., 2015). There is a tendency for patients with poor adherence to taking medication due to several things such as increasing age and a high level of knowledge (Raveendran & Kartika Sari, 2018). Recent research has also provided evidence that older people are more likely to pay attention to a healthy lifestyle than young people (Haveman-Nies, de Groot, & van Staveren, 2003) which combines the principles of healthy nutrition, quality sleep, regular physical activity, not smoking and regular check-ups (Babak Paknia, 2013). This could explain why older people tend to adhere to what makes them healthier, including diabetes medication.

We also found that more respondents were female and showed lower levels of adherence. Often, failure to carry out their role in the family, and lack of behavioural and emotional support to a wife with diabetes is one of the reasons why women often fail in carrying out their medication (Rezaei, Valiee, Tahan, Ebtekar, & Gheshlagh, 2019). One example is a woman with diabetes who has to change the diet recommended by her doctor for her condition to suit her husband's wishes and make food according to family requests (Mayberry & Osborn, 2012). The higher prevalence of women who do not adhere to medication and physical activity than men also occurs in some cases worldwide (Schoenthaler, Schwartz, Wood, & Stewart, 2012). It is predicted that non-adherence can take different forms in men and women. low quality of life, socioeconomic level and problems with disease control are found in many women. These factors may represent predictive variables for medication non-adherence in women (Arrelias, Faria, De Souza Teixeira, Dos Santos, & Zanetti, 2015).

Our findings also show that there is no significant relationship between education and medication adherence, this is consistent with the research (Naila Almira, Syamsul Arifin, 2019)(Burge et al., 2005) which states that there is no relationship between education level and medication adherence. However, different findings also suggest that medication adherence is directly proportional to patient education level. (Ponnusankar, Surulivelrajan, Anandamoorthy, & Suresh, 2004)(Marks, Schectman, Groninger, & Plews Ogan, 2010). Medication adherence was positively correlated with education. Apart from gender education, it is also an important factor for

medication adherence. This can be explained because women with less education are more likely to be preoccupied with children and families than women with more education (Hyre, Krousel-Wood, Muntner, Kawasaki, & DeSalvo, 2007). According to McGuire's Information Processing Theory 12 states that two factors must be present for a person to comply with the message: 1) acceptance (i.e., understanding of the message), and 2) giving (i.e., receiving the message). People with an IQ or higher level of education usually understand messages better than those with a lower IQ or a lower level of education.

Medication adherence before and after group therapy

Group therapy is carried out in 3 sessions, when group therapy is carried out, it is hoped that interactions will occur between diabetes mellitus patients and with facilitators to exchange information related to diabetes mellitus and its medication. Based on the results of statistical tests, the p-value is more than 0.05, this indicates that there is no significant relationship between the application of group therapy to medication adherence. This is not in line with research from Hariyanti in 2016 concerning the effect of counselling in prolong activities on medication adherence to diabetes mellitus patients, which found that there was an effect of counselling on medication adherence with a significance value of p = 0.000. The results of this study do show that there is no significant relationship, but quantitatively there is an increase in respondent adherence to medication, this is most likely due to the short duration of the study so that it is not possible to change behaviour significantly. This is also a research weakness that is expected to be resolved by future researchers. This shows that group therapy has a positive effect on increasing motivation in diabetes patients. Some of the factors that influence motivation are physical, mental, heredity, environment, age maturity, intrinsic a person, facilities and infrastructure, program situations and conditions as well as audio and visual activities. A person's health behaviour is determined by the intention of the health object, whether or not there is support from the surrounding community, the presence or absence of information about health, the freedom of the individual to make decisions, and situations that allow him to behave or not behave (Notoatmodjo, 2014).

Non-adherence of diabetes mellitus patients in undergoing therapy is one of the causes of the ineffectiveness of diabetes management. In addition, family support is one of the factors that have a significant contribution and as a reinforcing factor that affects the adherence of patients with diabetes mellitus(Anggina & Hamzah, 2010).

Conclusion

Although there is no effect of group therapy on adherence to diabetes mellitus medication, quantitatively it can be seen that there is an increase in adherence on a small scale, this shows that there is a change in behaviour that occurs after group therapy is given.

Limitations and Future Studies

The weakness of this research is that it is not carried out for a long time so that behaviour change cannot be maximized. However, it is hoped that further researcher can research in the long term so that changes in behaviour can be seen significantly.

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Authorship Contributions

Muhlisa builds concepts, designs, and searches for literature searches, while Amira does data collection, manuscript review, and manuscript finalization.

Disclosure

Muhlisa and Amira declare that there is no conflict of interest.

Compliance with Ethics Guidelines. This study received ethical approval from the Ethics Committee of Health Polytechnic of Tanjung Karang which is an educational institution under the auspices of the Indonesian Ministry of Health (approval number: 270 / EA / KEPK / -TJK / 2019. The ethical principles of research applied in this study are the principle of respect for human dignity, beneficence, and right to justice according to the International Ethical Guidelines for Health-Related Research Involving Human (CIOMS-WHO, 2016).

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