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The Effect of Transactional Stress and Meaning-Focused Coping on Compliance with Therapy Management for Diabetes Mellitus Clients

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Abstract
Diabetes Mellitus (DM) is a chronic disease that is marked by blood glucose content above normal levels and disorders of carbohydrate, fat, and protein metabolisms caused by relative or absolute lack of insulin hormone. The prevalence of DM around the world has reached epidemic levels. At the moment, worldwide occurrence of DM is estimated to be greater than 230 million, nearly 6% of the adult population. It is predicted that in the next 20 years, the number of DM clients will reach 350 million. Based on a preliminary research at a community health center, in a period of three months there were53 older than40 and younger than 60 with Diabetes Mellitus. In general, the aim of this research was to analyze the effects of the development of the transactional stress and coping model on compliance with therapy management of Type 2DM clients. The research utilized quasi-experimental design with on-equivalent control groups; the intervention group consisted of 24 people, and the control group also 24 people. The research used the consecutive sampling technique. The independent variable in this research was developing a model of the transactional stress and coping (primary and secondary evaluations and meaning-focused coping). As for the dependent variable, it was compliance with therapy management. For data analysis, the researcher utilized the Wilcox on test to find differences, and simple linear regression to understand effects. The research results showed differences between the intervention and control groups in terms of the variable of primary and secondary evaluations and the meaning-focused coping. In addition, the research also discovered that compliance influenced HbA1c examination results. It is recommended that health officials increase primary and secondary evaluations and meaning-focused coping in order to improve the compliance with therapy management among Type 2DM clients.
Keywords: Transactional Stress, Coping, Compliance, Diabetes Mellitus.

1. INTRODUCTION

Diabetes Mellitus (DM) is a chronic disease that is marked by blood glucose content above normal levels and disruptions in carbohydrate, fat, and protein metabolisms caused by relative or absolute lack of the insulin hormone. The prevalence of DM around the world has reached epidemic levels. The World Health Organization (WHO) estimated that by 2025 there will be an increase of new DM cases by 80% in developing countries (Diabetes Atlas, 2006, in Pranoto2012). At the moment, worldwide occurrence of DM is estimated to be greater than 230 million, nearly 6% of the adult population. It is predicted that in the next 20 years, the number of DM clients will reach 350 million. Every 10 seconds, one person dies from DM. DM is a hidden epidemic that claims an annual number of victims equivalent to that of HIV/AIDS. The WHO estimated that the number of DM clients in Indonesia in 2000 was as high as 8,426,000, and in 2030 it is projected to be as high as 21,257,000 (Pranoto, 2012). This data shows that the prevalence of DM increases every year.

Based on 2012 data from the Health Agency of the City of Surabaya, there was an increase of people with DM in Surabaya from 15,961 in the year 2009 to 21,729 in the year 2010to 26,613 in the year 2011.The number of people with DM continued to increase from 2009 to 2011, but then decreased in 2012 to 21,268 people. A preliminary research from Pacar Keling Community Health Center showed that in a period of 3 months, there were 53 patients with DM in the age criteria greater than 40andless than 60. Research results showed that out of 55 clients with DM, only 47.3% complied with the prescribed diet and treatment while 52.7% did not comply with the prescribed diet and treatment (Dewi and Puspa, 2014). Another research showed that out of 69 people with DM, 46.4% did not comply while 53.6% complied with the prescribed therapy (Senuk, Supit, and Onibala, 2013)

The solution for DM is to conduct the four pillars of DM management, which include health education, diet planning, regular physical exercise, and taking medications. Following these rules for life can be a great stressor for a DM client; therefore, many fail to comply. According to Niven (2000), compliance with DM therapy management may be affected by several factors, such as understanding of instructions, quality of interaction, social support from family, as well as patients' faith, attitude, and personality. Non-compliance that occurs during medication can cause failure to achieve goals. Non-compliance can worsen patients' health condition.

This research was conducted to measure the model of transactional stress and coping with regards to compliance with therapy management of DM clients. The application of the transactional stress and coping

model is useful for the promotion of health and prevention of disease. Stress affects individuals in different ways. Stress can cause illnesses and negative experiences. The important factoring overcoming stress includes whether it has impacts on people and how people seek treatment or professional social support. To overcome stress, one can conduct a research on the problem-focused coping, emotion-focused coping, and meaning-focused coping in order to prevent unhealthy lifestyle. The model of transactional stress and coping is a framework to evaluate the process of overcoming stress for DM patients. This research aimed to analyze the effects of transactional stress and coping on the compliance with therapy management among Type 2 DM clients.

3. RESEARCH METHODS

The research utilized a quasi-experimental design with non-equivalent control groups; the sample includes an intervention group consisting of 24 people and a control group also consisting of 24 people. The research used the consecutive sampling technique. The independent variable in this research was the development of the transactional stress and coping model (primary and secondary evaluations and meaning-seeking coping). As for the dependent variable, it was the compliance with therapy management. For data analysis, the researcher utilized the Wilcoxon test and Mann-whitney test to find differences, and simple linear regression to understand effects.

4. RESULTS AND DISCUSSION

1. Data of primary and secondary evaluations

Table 4.5 The difference between pre- and post-treatment of the variable of primary and secondary evaluations for the control and treatment groups

Primary and secondary evaluations	Group			
	Control		Treatment	
	Pre	Post	Pre	Post
Poor	17	16	18	0
	70,8%	66,7%	75%	0%
Satisfactory	7	8	6	15
	29,2%	33,3%	25%	62,5%
Good	0	0	0	9
	0%	0%	0%	37,5%
Total	24	24	24	24
	100%	100%	100%	100%
Sig.	0,317		0,000	
Sig. control	0,748			
Sig. treatment	0,000			

Calculation results showed that for the control group, there is no significant difference between the number of DM clients with primary and secondary evaluation results in the categories of “poor” and “satisfactory” before the treatment and that after the treatment; the numbers are different only by one person. This is supported by statistical calculation results from the Wilcoxon test, which also showed that there was no difference in primary and secondary evaluation results between pre and post because the significance value was greater than 0.05,at 0.317.

As for the treatment group, there is a difference in the number of DM clients who had primary and secondary evaluation results in the categories of “poor”, “satisfactory”, and “good” before the treatment and that after the treatment. After receiving the treatment, none were in the category of “poor”, while the category of “satisfactory” increased in size, and the category of “good” increased to 9 people. Results of statistical calculations from the Wilcox on test showed a significance value of 0.000. Since the significance value was less than 0.05, it can be said that there was a difference in primary and secondary evaluations for the treatment group before and after the treatment; the group that received treatment had a greater or better evaluation than before receiving the treatment.

Statistical calculations with the Mann-Whitney test resulted in a significance value of 0.748. This value was greater than 0.05, which means that there was no difference between the treatment and control groups for the variable of primary and secondary evaluation on the pre-test. With regards to the post-test, the significance value was0.000. This significance value was less than 0.05, which means that there was a difference between the treatment and control groups for the variable of primary and secondary evaluations.

2. Data of meaning-focused coping

Table 4.5 Pre and post differences of the variable of meaning-focused coping for the control and treatment groups

Meaning-focused Coping	Group			
	Control		Treatment	
	Pre	Post	Pre	Post
Poor	13	13	15	0
	54,2%	54,2%	62,5%	0,0%
Satisfactory	11	10	8	14
	45,8%	41,7%	33,3%	58,3%
Good	0	1	1	10
	0,0%	4,1%	4,2%	41,7%
Total	24	24	24	24
	100%	100%	100%	100%
Sig.	0,841		0,000	
Sig. pre	0,657			
Sig. post	0,000			

Based on the above table, it was found that the number of DM clients in the control group with meaning-focused coping in the category of "poor" before the treatment is the same as that after the treatment, that is, 13 people. Those in the categories of "satisfactory" and "good" did not significantly differ because they differed by only one person. This is supported by statistical calculation results from the Wilcox on test which showed that there was no difference in the meaning-focused coping between pre and post because the significance value was greater than 0.05, at 0.841.

For the treatment group, the number of DM clients who had meaning-focused coping in the categories of "poor", "satisfactory", and "good" before the treatment differed from that after the treatment. After treatment was given, none were in the category of "poor", while the categories of "satisfactory" and "good" increased in number compared to before the treatment. Results of statistical calculations from the Wilcox on test showed a significance value of 0.000. Since the significance value was less than 0.05, it can be said that there was a difference in meaning-focused coping for the treatment group before and after the treatment, where the group that received treatment had a level of meaning-focused coping that was higher or better compared to before being given treatment.

The results of statistical calculations with the Mann-Whitney test showed a significance value of 0.657. This value was greater than 0.05, so there was no difference between the treatment and control groups for the variable of meaning-focused coping for the pre-test. For the post-test, the significance value was0.000. This significance value was less than 0.05, so there was a difference between the treatment and control groups for the variable of meaning-focused coping.

3. Data of compliance with DM therapy management

Table 4.5 Difference between pre and post of the variable of compliance with DM therapy data for the control and treatment groups

The compliance of DM Therapy Management	Group			
	Control		Treatment	
	Pre	Post	Pre	Post
Un-compliant	16	16	14	8
	66,7%	66,7%	58,3%	33,3%
Compliant	8	8	10	16
	33,3%	33,3%	41,7%	66,7%
Total	24	24	24	24
	100%	100%	100%	100%
Sig.	0,152		0,021	
Sig. pre	0,625			
Sig. post	0,039			

Calculation results showed that for the control group, the number of DM clients who fell into the category of "compliant" was the same before the treatment as that after the treatment, namely, 8 people. The same was true for the category of "un-compliant,"16 people. This showed that there was no difference in the level of compliance with the therapy management between pre-and post-treatment. This is supported by the statistical calculation results from the Wilcoxon test which also showed that there was no difference because the significance value was greater than 0.05, at 0.152.

For the treatment group, clients' compliance or non-compliance with DM therapy management before the treatment differed from that after the treatment. After receiving the treatment, the number of non-compliant DM clients was lower, while the number of those who complied increased. Results of statistical calculations from the Wilcoxon test showed a significance value of 0.021. Since the significance value was less than 0.05, it can be said that there was difference incompliance with DM therapy management for the treatment group before and after the treatment, where the group that received treatment had a greater or better compliance compared to before being given treatment.

Results of statistical calculations with the Mann-Whitney test showed a significance value of 0.625. This value was greater than 0.05, so there was no difference between the treatment and control groups for the variable of compliance with DM therapy management for the pre-test. Meanwhile for the post-test, the significance value was0.039. This significance value was less than 0.05, so there was a difference between the treatment and control groups for the variable of compliance with DM therapy management.

4. Data of HbA1c laboratory examination results

Table 4.5 showed that there was a difference in the HbA1c laboratory results between the control and treatment groups when seen from the central tendency values (mean, median, and mode) and statistical testing results. Based on the standard lab normality value for HbA1c, a result greater than 8 showed a worse state. The average value for the treatment group was lower compared to the control group and this was also true for the median. For the control group, only 4 people had a value of less than 8. Meanwhile, for the treatment group, 9 people had a value of less than 8. This showed that, for the treatment group, more people were closer to the normal value compared with the control group. Statistical calculations using an independent T-test showed a significance value of 0.029. Because the significance value was less than 0.05, Ho is rejected, which means there was a difference in the HbA1c results between the control group and the treatment group.

Results of statistical calculations for a simple logistic regression test of the primary-secondary evaluation and meaning-focused coping variables toward compliance for the control group showed significance values of 0.932 and 0.481. As the significance values were greater than 0.05, it can be said that there was no effect of primary-secondary evaluation and meaning-focused coping variables toward compliance for the control group. For the treatment group, the significance values were 0.07 and 0.03. As the significance values were less than 0.05, Ho is rejected, meaning that there was an effect of primary-secondary evaluation and meaning-focused coping variables toward compliance for the treatment group.

Results of statistical calculations for a simple linear regression test of the compliance variable toward the HbA1 clab results for the control group showed a significance value of 0.461. Since the significance value was greater than 0.05, it can be said that compliance with DM therapy management has no effect on HbA1clab results. As for the treatment group, statistical calculations resulted in a significance value of 0.020. Since the value is less than 0.05, Ho is rejected, which means compliance with DM therapy management affects HbA1 clab results.

HbA1c examination was performed in order to find out the control of glucose metabolism over the previous 100–120 days. Examination results showed that for the intervention group, theHbA1c results were better compared to results from the control group. A person's compliance with therapy management is often disturbed, such as the issue diet, which is most vulnerable to violation, thus resulting in the stability or instability of the blood sugar content. Locus of control very much affects the level of compliance of a person.

Rotter (1954, in Safitri, 2013) stated that locus of control is a push within individuals to obey and follow rules that are given to change the fate of an individual for the better. This self-control can be grouped into two categories, internal and external. Individuals with an internal locus of control believe that their success or failure results from their own actions and abilities. They feel that they are able to control the consequences of their own actions. On the contrary, individuals with an external locus of control see that success is basically determined by forces outside themselves, such as luck, social context, or other people. Individuals with an external locus of control feel unable to control things that happen to them. Meanwhile, according to Levenson in Safitri (2013), individuals that are oriented towards an external locus of controlcan be grouped into two categories, those oriented around "powerful others" andthose oriented around "chance". Individuals oriented around "powerful others "are certain that their lives as people with DM are determined by more powerful people around them. As for those oriented around "chance," they are certain that their lives and events in their lives are mostly determined by destiny, fate, luck, and chance. This is why people with external locus of control are unable to be independent and always relies on support from others.

5. CONCLUSION

a. For the control group, DM patients' primary and secondary evaluations of the stressor (their DM disorder) and their ability to control stress situations showed that there was a difference between the result from before and that from after the intervention. For the control group, such significant difference was not present.

b. In terms of meaning-focused coping, the intervention group did not show any difference of between results from the pre-and post-treatment. After receiving treatment, the intervention group had a level of meaning-focused coping higher or better compared to that before being given treatment.
c. In terms of compliance with DM therapy management, the treatment group and the control group showed a difference, in which the group that received treatment had higher or better compliance compared to the group that had not received treatment.
d. HbA1c examination results showed that the intervention group was better compared to the control group.

6. SUGGESTION

a. It is necessary to increase patients' ability to perform primary and secondary evaluations as well as to increase their level of meaning-focused coping so that they may be able to control stressful situations regarding their DM condition.
b. It is necessary to increase continuous family support for the family members of people with DM so that people with DM may be able to increase compliance with DM therapy.
c. Health Officials need to provide counseling for DM clients so that they are able to perform primary and secondary evaluations as well as meaning-focused coping in order to increase compliance with therapy managementof clients of Type 2DM.

REFERENCES

Agung Pranoto, 2012. Tantangan Diabetes Mellitus Sebagai Wabah Penyakit Dunia.RumahSakitDarmohttp://www.Suarasurabaya.net/referensikesehatan/read/26-Tantangan-Diabetes-Mellitus-Sebagai-WabahPenyakit–Dunia, diakses 7 Januari 2015

Arif Mansjoer.1999. Kapita Selekta Kedokteran. MediaAesculapiuus.Jakarta

Abdurrahim Snuk, Wenny Supit, Frabley Onibala (2013). Hubungan Pengetahuan dan Dukungan Keluarga dengan Kepatuhan Menjalankan Diet Diabetes Melitus di Poliklinik RSUD Kota Tidore Provinsi Maluku Utara. e-Journal Keperawatan (e-Kp) Vol.1 Nomor 1 Agustus 2013. e-Journal.unsrat.ac.id, diakses 21 Maret 2014.

Black & Hawks. 2009. Medical Surgical Nursing Clinical Management for Positive Outcomes. elseveir Saunders.

Bart Smeth . 1994. Psikologi Kesehatan, Gramedia widiasarana indonesia, Jakarta.

Bustan MN. 1999.Epidemiologi Penyakit Tidak Menular, Rineka Cipta, Jakarta.

Dinas Kesehatan Kota Surabaya.2012. Profil KesehatanKotaSurabayaTahun2010.Surabaya: Dinas Kesehatan Kota Surabaya.

Dewi, Nadi, Puspa. 2014 Gambaran Pengetahuan Pasien Tentang Dm Tipe 2 Dan Obat Anti Diabetes Oral di RS dan Klinik Gotong Royong Surabaya. Thesis. Widya Mandala Catholic University Surabaya.

Folkman, S. 1986. Ways of Coping - Center for AIDS Prevention Studies (CAPS). caps.ucsf.edu/.../pdf/Ways%20of%20coping.pdf.diakses 21 Maret 2014.

Glanz, K., Schwartz, M. 2010.Stres, Koping, and Health Behavior. In: Glanz, K., Rimer, B., Viswanath, K., ed. Health Behavior and Health Education: Theory, Research, and Practice. 4th ed. San Francisco, CA: Jossey-Bass.

Lazarus, R.S & Folkman,S. 1984. Stress, Appraisal and Coping. New York. Springer Publishing Company.

Niven, Neil. 2002.Psikologi Kesehatan. Jakarta: ECG

Perkeni. 2006. Konsensus Pengelolaandan Pencegahan Diabetes Mellitus Tipe 2 di Indonesia.http://www.kedokteran.info/konsensus-pengelolaan-dan-pencegahan-diabetes-mellitus-tipe-2-di-indonesia-2006.html.PDF).

Peacock,E.J., Wong,P.P. 1990. The Stress Appraisal Measure (SAM) A Multidimensional Approach to Cognitif Appraisal. Stress Medicine Vol 6: 227-236.

Rustiana, Eunike R. 2006.Psikologi Kesehatan. Semarang: Unnes Press.

Rasmun. 2004.Stress,koping dana daptasi teori dan pohon masalah keperawatan. Jakarta: CV Sagung Seto.

Suyono,S.2009.Kecenderungan Peningkatan Jumlah Penyandang Diabetes, dalam Penatalaksanaan Diabetes Melitus Terpadu.Jakarta: Balai Penerbit FK UI.

Smeltzer.S.C, Bare.B.G, 1996.Buku ajar keperawatan Medikal Bedah Brunner & Suddarth ed 8. Terjemahan H.Y.Kuncara, Andry Hartono, monica Ester, dkk. 2002. EGC. Jakarta.

Stuart, Sudeen.1998.Buku Saku Keperawatan Jiwa. Edisi 3. Alih Bahasa Akhir Yani S. Jakarta: EGC.

Sastroasmoro, Ismael S. 1997. Dasar-Dasar Metode Penelitian Klinis,Penerbit Bina Aksara, Jakarta,

Sarwono SW, 2001. Pendidikan kesehatan dan beberapa model perubahan perilaku. Dalam: Sosiologi Kesehatan.Gajah Mada University Press.

Subekti, I. 2009. Apa Itu Diabetes; Patofisiologi, Gejala dan Tanda. Jakarta: Balai Penerbit FKUI.

Safitri, I.N. 2013.Kepatuhan penderita Diabetes Mellitus tipe II ditinjau dari locus of control, Jurnal Psikologi Vol. 01, No.02, Agustus 2013 ISSN: 2301-8267.

Tjokroprawiro,A.2006.Hidup Sehat dan Bahagia Bersama Diabetes.Jakarta: GPU.

Tobert, D.J., Hampson, S.E., Glasgow, R.E. 2000.the Summary of Diabetes Self-Care Activities (SDSCA). Diabetes Care, Volume 23, Number 7, July 2000.

World Diabetes Foundation. 2005. Atlas Diabetes. Executive Summary, second edition.

Waspadji S. 2007. Komplikasi kronik Diabetes : Mekanisme Terjadinya, Diagnosis dan Strategi pengelolaanDalam : Aru W, dkk, editors, Ilmu Penyakit Dalam, Jilid III, Edisi keempat, Penerbit FK UI, Jakarta,.