



## Psychosocial Distress in Chronic Disease Patients in Salatiga

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### Abstract

Patients of hypertension (HT), diabetes mellitus (DM), and mixed (DM-HT) have a vulnerability to stress due to illness and psychosocial responses. Research aimed to identify psychosocial distress, the components, and their relationship to levels of GDP, systole/diastole, and cholesterol in three groups. The quantitative survey research was designed for 42 people, with purposive sampling at the Manunggal Clinic. The collection of psychosocial distress data was by a standard questionnaire. While systole/diastole, GDP, and cholesterol levels with an examination in the laboratory, in April-May 2018. Analysis with ANOVA and Pearson test,  $\alpha < 0.05$ . Shows sufferers have low distress, moderate distress, and high distress. The average score of emotional component (3.2), chronic disease management difficulties (3.2), difficulties with doctors (3.0), and difficulties with friends/people around (2.6). ANOVA test showed no significant difference in psychosocial distress scores ( $p = 0,079$ ). The Pearson test showed a weak correlation between psychosocial distress and systole; diastole; GDP and cholesterol. Conclusion: Psychosocial distress of chronic disease sufferers in Salatiga is included in the category of moderate and high. The highest score on the emotional burden component and the difficulty of chronic disease management. There were no significant differences in psychosocial distress scores, blood pressure, blood sugar levels, and cholesterol in the three groups.

### Introduction

The bidirectional association between chronic physical diseases and psychopathological factors might lead to an exacerbation of both conditions. It is possible to intervene both with medical and psychological science to improve the quality of life. Therefore, physical symptoms. In the history of the patient's illness, the weight of psychological variables plays a fundamental and non-negligible role when the doctor's interest is that of treating the patient from a long-term perspective (Conversano, 2019). The most common chronic physical diseases (namely cardiovascular disease, asthma, arthritis, and osteoporosis) are often complicated by psychiatric symptoms or emotional/psychological subjective suffering. Subjects with diabetes and/or hypertension have a higher proportion of psychological

distress compared to healthy subjects (Balajee et al., 2017).

The number of patients with diabetes mellitus, especially type 2, keeps increasing throughout the year. World Health Organization predicted that the number of diabetes mellitus patients in Indonesia will increase to 21.3 million in 2030, while International Diabetes Federation (IDF) envisaged that it will increase by 12 million in 2030 (PERKENI, 2011). Diabetes Mellitus (DM) is a metabolic disease indicated by hyperglycemia caused by the damaged pancreas in producing insulin, function of insulin, or both. Insulin resistance and dysfunction of the pancreatic beta-cell are the main factors that can cause DM. DM complication damages all body organs, both on human patients (PERKENI, 2011) and experiment rats (Navaro, 2010).

The rise of fasting blood sugar levels

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above the normal range or hyperglycemia shows chronic DM. It can cause serious micro and macrovascular complications in the various body organ system. Part of the excess glucose had an enzymatic and non-enzymatic reaction with protein or matters existing in the circulation or system that could accelerate the glycation process. Glucose experiences auto-oxidation that causes overproduction of mitochondrial reactive oxygen species (ROS), antioxidant decrease, and inadequate ROS disposal. In addition, it will also cause a decrease in capillary permeability and will disrupt nutrition intake. Oxidative stress also plays important role in hastening DM complication (Giacco and Brownlee, 2010).

Patients with DM have psychological vulnerability due to uncontrollable blood sugar profile and the period of suffering from DM. In patients with chronic disease management, one will need good management of personal emotional burden, family, other people, medical staff, and management for diabetes mellitus therapy. The existence of these aspects maintains the stability of psychological dynamics of patients with DM and it could affect their blood sugar level and blood pressure. However, these aspects are often overlooked and ignored in DM treatment and management.

Therefore, several efforts to identify the psychosocial aspects of patients with DM, including personal emotional burden, difficulty with family members/other people, difficulty with medical staff, and difficulty in managing DM therapy, need to be done. These aspects will be studied and measured on the amount of role and influence and its specific management so that it will not harm fasting blood sugar profile and blood pressure<sup>4</sup>. The research aims to identify the psychosocial distress category and its components and its correlation with fasting blood sugar profile, systole/diastole, and cholesterol in patients with HT, DM, and HT-DM.

## Method

The research used a quantitative survey design at Klinik Manunggal Salatiga. The identification of psychosocial distress

aspects on patients with DM and HT included personal emotional burden, difficulty with family members/other people, difficulty with medical staff, and difficulty in managing diabetes mellitus therapy. The data were collected through a purposive sampling method with a total sample of 42 respondents. The research participants were required to fill informed consent before completing the questionnaire. The data collection was done through a standard questionnaire mainly about psychosocial distress<sup>4</sup>. The recapitulation result of this questionnaire was in the form of tabulation of psychosocial distress profile in number proportion and its correlation to diabetes parameter. The research participants were categorized into low, medium, and high distress (Arifin, 2016). Fasting blood sugar profile, systole/diastole, and cholesterol serve as the main parameters. The collection of fasting blood sugar data was after the patients fasted for 8-9 hours with arteriole blood examination from the fingertips (fasting blood sugar, Nesco tool method) and through vena vein (blood sugar two hours after eating, Microlab method). Systole/diastole was examined using sphygmomanometer mercury (Nova Riester). The analysis was done by One Way Anova test and Pearson correlation test with SPSS version 20, and  $\alpha < 0.05$

## Results and Discussion

The data acquired from 42 participants, after being analyzed with statistics, showed homogenous data ( $p > 0.05$ ) and normal spread ( $p > 0.05$ ). Homogeneity test data on blood sugar, systole blood pressure, diastole, cholesterol level, and distress score showed a range of  $p$  0.071 - 0.743. The normality test ranges from 0.055 - 0.346. Thus, the data distribution is homogeneous and normal. According to Table 1, the research participants were categorized into three distress categories: low distress, medium distress, and high distress, according to the qualification of score categorization. It was considered as low if the score was  $< 2$ ; medium if the score was 2 - 3, and considered as high distress if the score was  $> 3$  (Arifin, 2016).

Table 1. Classification of Psychosocial Distress on All Group

Classification	Numbers	Proportion (%)
Low Distress	12	0.285714286
Medium Distress	12	0.285714286
High Distress	18	0.428571429
Total	42	1

source: secondary data statistical test)

Out of all participants, 42.8 % of respondents had high psychosocial distress, and more than half of them (60 %) had blood sugar levels and cholesterol levels (16.6%) above the normal range. This was supported by the research results that 55.6% of participants with poor blood sugar profiles. There was a correlation between stress level and fasting blood sugar level in patients with DM with a correlation score of 0.477 on medium level (Irvan dan Wibowo, 2015). Furthermore, there was also a correlation between the duration of illness and stress levels in patients with DM ( $p=0.001$ ) (Sharp & Theiler, 2018). On patients with DM, obtained there is a significant difference between blood glucose levels before and after progressive muscle relaxation therapy

(Karokaro dan Riduan, 2019).

Table 2 showed the mean score of psychosocial distress aspects such as emotional burden (3.2), difficulty in managing chronic disease (3.2), difficulty with the doctor (3.0) as high if compared to another aspect such as difficulty with friends and other people (2.6) that were considered as a medium.

Table 2. Average of Psychosocial Distress Aspects on All Group

Aspect	Score Total	Average
Emotional burden	133.5	3,2
Difficulty with doctor	126.25	3,0
Difficulty in managing chronic disease	132.4	3,2
Difficulty with friends and other people	109	2,6

source: secondary data statistical test

Table 3 showed ANOVA test on the scores of distress, fasting blood sugar, systole, diastole, and cholesterol level that did not show significant different between patients with HT, DM, and HT-DM.

Table 3. One Way ANOVA test of psychosocial distress score

		Sum of Squares	df	Mean Square	F	Sig.
Distress Score	Between Groups	8.483	2	4.242	2.861	.079
	Within Groups	32.611	22	1.482		
	Total	41.094	24			
tran_age	Between Groups	.205	2	.102	.607	.552
	Within Groups	4.717	28	.168		
	Total	4.922	30			
GD2	Between Groups	234.737	2	117.368	.291	.750
	Within Groups	11715.732	29	403.991		
	Total	11950.469	31			
Systole	Between Groups	42.011	2	21.005	.165	.849
	Within Groups	3695.489	29	127.431		
	Total	3737.500	31			
Diastole	Between Groups	988.927	2	494.464	.304	.741
	Within Groups	37420.457	23	1626.976		
	Total	38409.385	25			

source: secondary data statistical test

Table 4 displayed the LSD test specifically for psychosocial distress score between groups and showed significant difference (p=0.038) between patients with HT and patients with

DM. However, there was no significant difference (p=0.079) between patients with DM and patients with HT-DM (p=0.826).

Table 4. LSD Multiple Comparison Test of Psychosocial Distress Score

(I) kelp peny	(J) kelp peny	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	1.26797*	.57394	.038	.0777	2.4582
	3.00	1.13165	.61357	.079	-.1408	2.4041
2.00	1.00	-1.26797*	.57394	.038	-2.4582	-.0777
	3.00	-.13632	.61357	.826	-1.4088	1.1361
3.00	1.00	-1.13165	.61357	.079	-2.4041	.1408
	2.00	.13632	.61357	.826	-1.1361	1.4088

\*. The mean difference is significant at the 0.05 level.  
source: secondary data statistical test

A significance value of p=0.017 on the relationship between knowledge and beliefs with self-efficacy on Diabetic Foot Ulcers of the patient. Necessary to study psychosocial factors in patients with Diabetic Foot Ulcers associated with self-efficacy (Rias, 2016). A minor correlation of intelligence/emotional burden with stress level on patients with DM (Gong & Fone, 2016; Bacchi & Licinio, 2017.). Patients with DM could experience difficulty in

self-management or self-efficacy, which became an important focus for patients with chronic disease, especially DM (Wagner, Tenner and Osborn, 2010).

Table 5 presented the Pearson correlation test between the scores for the psychosocial distress variable and fasting blood sugar level, systole, diastole, and cholesterol variable. Between these variable groups, there was no significant difference with minor correlation.

Table 5. Pearson Correlation Test

		Tran_age GD2	Cholesterol	Diastole	Systole	Distress Score
Distress Score	Pearson Corr.	.106	.185	.189	.014	1
	Sig. (2-tailed)	.614	.375	.365	.948	
	N	25	25	25	25	25

\*. Correlation is significant at the 0.05 level (2-tailed).  
\*\*. Correlation is significant at the 0.01 level (2-tailed).  
source: secondary data statistical test

Information support about diabetes could also influence one's stress level. There was a correlation between information support and stress level (p=0.000), the correlation between emotional support and stress level (p=0.000), the correlation between assessment support and stress level (p=0.000), and the correlation between instrumental support and stress level (p=0.000) on patients with DM (Arvidsdotter et al., 2015). In addition to stress, family support and self-management also influenced patients with DM who had diabetic ulcer complications. There was an influence on stress (p=0.000), family support (p=0.007), and self-

management (p= 0.000) on patients with DM who had diabetic ulcer complications. The most influential variable on patients with DM who had diabetic ulcer complications was high stress with OR 7.757, CI 95% (2.590-22.151) (Molly & Crossman, 2016). The other research on the paired t-test showed that p = 0.001 in the treatment group which means that there is an effect on self-efficacy before and after self-instructional training is given. There is the effect of giving self-instructional training to self-efficacy in people with diabetes mellitus in the treatment group after being given self-instructional training. Self-instructional

training can be used especially for people with DM as self-instruction that can normalize blood sugar (Eskin et al., 2016; Bougie et al., 2016).

The correlation value of Rank Spearman 0.605,  $p = 0.0001$  on self-efficacy and social support 0.648,  $p = 0.0001$  shows there is a strong relationship to the self-care management of patients with type 2 diabetes mellitus in Sembiran Village, Tejakaula District. It is expected that good social support and self-efficacy can improve self-care management in patients suffering from type II DM (Sass et al, 2017.). Patients with more severe psychiatric and/or medical comorbidity are no less likely to benefit from a PPI compared to those with higher levels of health, even though these programs do not directly target psychological distress. PPIs may be widely applicable to medical patients, with lower psychological wellbeing a potential predictor of increased benefit (Feig et al., 2019).

Similarly, there was a significant effect of Diabetes Self-Management Education and Support towards the decline of distress on patients with DM. Paired t-test showed there was a significant difference of distress between pre-test and post-test both in the intervention group ( $p=0.001$ ) and control group ( $p=0,046$ ). Similarly, on an independent t-test, it showed a significant difference on intervention group and control group ( $p=0.001$ ) (Nurkamilah, Rondhianto dan Widayati, 2018).

## Conclusion

On chronic DM, patients had a higher risk of psychosocial distress on components such as emotional burden, difficulty in managing chronic disease, and difficulty with the doctor. On the other hand, difficulty with other people was on a medium level. However, there was no significant difference in psychosocial distress, blood sugar levels, systole and diastole blood pressure, and cholesterol level in patients with hypertension, DM, or HT-DM. There was a minor correlation between psychosocial distress, systole, diastole, blood sugar level, and cholesterol.

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## References

- Arifin, B., Perwitasari, D.A., Thobari, J.A., Krabbe, P.F.M., & Potsma, M.J., 2016. Translation, Revision, and Validation of The Diabetes Distress Scale for Indonesian Type 2 Diabetic Outpatients with Various Types of Complications. *Value in Health Regional Issues*, 12C, pp.63-73.
- Arvidsdotter, T., Marklund, B., Kylén, S., Taft, C., & Ekman, I., 2015, Understanding Persons with Psychological Distress in Primary Health Care. *Scandinavian Journal of Caring Sciences*, 30(4), pp.687-694.
- Bacchi, S., & Licinio, J., 2017. Resilience and Psychological Distress in Psychology and Medical Students, *Academic Psychiatry*, 41, pp.185–188.
- Balajee, K.L., Kumar, G.S., & Shidam, U.G., 2017. Comparison of Psychological Distress and Its Associated Factors Among Chronic Disease and Healthy Subjects in Rural Puducherry, India. *Indian Journal of Social Psychiatry*, 33(2), pp. 77-180.
- Bougie, E., Arim, R.G., Kohen, D.E., & Findlay, L.C., 2016. Validation of the 10-item Kessler Psychological Distress Scale (K10) in the 2012 Aboriginal Peoples Survey. *Health Reports*, 27(1), pp.3-10.
- Conversano, C., 2019. Common Psychological Factors in Chronic Diseases. *Front. Psychol.*, 10(2727), pp.1-3.
- Eskin, M., Sun, J., Abuidhail, J., Yoshimasu, K., Kujan, O., Janghorbani, M., Flood, C., Carta, M.G., Tran, U.S., Mechri, A., Hamdan, M., Poyrazli, S., Aidoudi, K., Bakhshi, S., Harlak, H., Francesca, M., Phillips, L., Shaheen, A., Taifour, S., Tsuno, K., & Voracek, M., 2016. Suicidal Behavior and Psychological Distress in University Students: A 12-nation Study. *Archives of Suicide Research*, 20(3).
- Feig, E.H., Healy, B.C., Celano, C.M., Nikrahan, G.R., Moskowitz, J.T., & Huffman, J.C.,

2019. Positive Psychology Interventions in Patients with Medical Illness: What Predicts Improvement in Psychological State? *International Journal of Wellbeing*, 9(2), pp.27-40.
- Giacco, F., & Brownlee, M., 2010. Oxidative Stress and Diabetic Complications. *Circ Res.*, 107, pp.1058-70.
- Gong, Y., & Fone, D., 2016. A Systematic Review of the Relationship between Objective Measurements of the Urban Environment and Psychological Distress. *Environment International*, 96, pp.48-57.
- Irvan, M., & Wibowo, H., 2015. The Relationship Between Stress Level With Sugar Blood Level at People With Diabetes Mellitus (Dm) In Peterongan Clinic Jombang Regency. *Jurnal Ilmiah Keperawatan (JIKep)*, 1(2).
- Karokaro, T.M., & Riduan, M., 2019. Pengaruh Teknik Relaksasi Otot Progresif terhadap Penurunan Kadar Gula Darah pada Pasien Diabetes Mellitus tipe 2 di Rumah Sakit Grandmed Lubuk Pakam. *Jurnal Keperawatan dan Fisioterapi (JKF)*, 1(2), pp.48-53.
- Molly, K., & Crossman., 2016, Effects of Interactions with Animals On Human Psychological Distress. *Journal of Clinical Psychology*, 73(7), pp.761-784.
- Navaro, C., Juncos, T.M.A., Chafer, R.M., Iniguez, O.L., Blazquez, C.J.A., & Mirales, G.J.M., 2010. Effect of Experimental Diabetes and STZ on Male Fertility Capacity. Study in Rats. *J Androl*, 8(007260).
- Nurkamilah, N., Rondhianto, & Widayati, N., 2018. The Effect of Diabetes Self Management Education and Support [DSME/S] on Diabetes Distress in Patient. *E-Jurnal Pustaka Kesehatan*, 6(1), pp. 133-40.
- PERKENI., 2011. *Konsensus Pengendalian dan Pencegahan Diabetes Mellitus Tipe2 di Indonesia*.
- Rias, Y.A., 2016. Hubungan Pengetahuan Dan Keyakinan Dengan Efikasi Diri Penyandang Diabetic Foot Ulce. *Jurnal Keperawatan Muhammadiyah*, 1(1), pp.13-7.
- Sass, V., Kravitz-Wirtz, N., Karceski, S.M., Hajat, A., Crowder, K., Takeuchi, D., 2017. The Effects of Air Pollution on Individual Psychological Distress. *Health & Place*, 48, pp.72-79.
- Sharp, J., & Theiler, S., 2018, A Review of Psychological Distress Among University Students: Pervasiveness, Implications and Potential Points of Intervention. *International Journal for the Advancement of Counselling*, 40, pp.193-212.
- Wagner, J.A., Tenner, H., & Osborn, C.Y., 2010. Lifetime Depression and Diabetes Self-management in Women with type 2 Diabetes: A Case-Control Study. *Diabetic Medicine*, 27, pp.713-7.