

THE RELATIONSHIP OF EMOTIONAL RESPONSE WITH RANDOM BLOOD SUGAR LEVELS IN TYPE 2 DIABETES MELLITUS

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THE RELATIONSHIP OF EMOTIONAL RESPONSE WITH RANDOM BLOOD SUGAR LEVELS IN TYPE 2 DIABETES MELLITUS

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ABSTRACT

Diabetes Mellitus is very influential on the quality of human resources and has an impact on increasing health costs that are quite large. Because this disease is a progressive and chronic disease that cannot be completely cured. Patients with diabetes mellitus have a high level of stress and anxiety, which is associated with treatment that must be followed and the occurrence of serious complications. The research design used in this study was correlational analytic, with a cross sectional approach. The population was all patients with type 2 Diabetes Mellitus in the Dahlia Room at Jombang Hospital in the amount of 72 people. The sampling technique uses proportional random sampling with a sample of 42 people. The research instrument used observation sheets with data processing editing, coding, scoring, tabulating and statistical tests using Spearman rank with an alpha (α) value of 0.05. The results of this study were that most (31%) respondents experienced mild anxiety, most (28.6%) experienced moderate fear and random sugar levels in the majority (61.9%) respondents were high, based on the results of the Spearman rank statistical test between anxiety with random blood sugar levels obtained p value of 0,000 and less than 0.05 while the results of the Spearman rank statistical test between fear of random blood sugar levels obtained a value of p value of 0,000 and smaller than 0.05 which means H₁ is accepted. This study can be concluded that there is a relationship between emotional response with random sugar levels in patients with type 2 diabetes mellitus in the Dahlia Room at RSUD Jombang

Keywords : Emotional Response, Anxiety, Fear, Random Blood Sugar Levels

INTRODUCTION

Orthostatic hypotension is defined as a decrease to least 20 mmHg of systolic blood pressure and /or 10mmHg of diastolic pressure, with or without symptoms, seen within 3 minutes of onset of active orthostatism or a passive verticalization test on a tilting table.

The HO translates the failure of the baroreflex to maintain blood pressure during standing and is often the manifestation of a complex disorder of blood pressure regulation involving HO and high blood pressure of decubitus. It is frequent in hypertensive patients treated especially elderly and it can be associated to annoying symptoms. Its management necessarily requires an adaptation of current treatments, particularly antihypertensives.

In addition, HO is considered as an independent cardiovascular risk factor.

We undertook this study to evaluate the frequency of HO in hypertensive patients and to identify the contributing factors.

MATERIAL AND METHODS

Diabetes Mellitus is very influential on the quality of human resources and has an impact on increasing health costs that are quite large. Therefore all parties, both the public and the government, should actively participate in efforts to prevent them. Diabetes Mellitus is a chronic disease that will be carried for a lifetime. Management of this disease requires the participation of doctors, nurses, nutritionists, and other health workers. Patients and families also have an important role, so it is necessary to get education to provide an understanding of the course of disease, prevention, complication, and management of Diabetes Mellitus. A good understanding will greatly help increase family participation in efforts to manage Diabetes Mellitus to achieve better results (Perkeni, 2015).

Someone who is diagnosed with Diabetes Mellitus, an emotional response that usually appears is rejection, anxiety, stress and depression (Taylor, 2009). Patients with diabetes mellitus have a high level of stress and anxiety, which is associated with treatment that must be followed and the occurrence of serious complications. Depression experienced by sufferers is related to treatment that must be undertaken such as diet or eating arrangements, drug consumption and also exercise. In addition, the risk of complications of the disease that can be experienced by sufferers also causes stress (Sholichah, 2009).

Psychological pressure caused by the impact of the disease also needs to be actively managed. The physical effects of disease can be severe and affect many aspects of their lives and identities. For others, the prognosis may be bad or uncertain, in terms of emotional functioning and personal relationships will be affected. Interventions that have been applied or drawn on a self regulatory framework in a chronic disease population.

¹ *International Diabetes Federation (IDF)* calculates the incidence of Diabetes Mellitus in the world in 2012 was 371 million, in 2013 it increased to 382 million and it is estimated that in 2035 Diabetes Mellitus sufferers will increase to 592 million (RI Ministry of Health, 2014). Based on data from RSCM Jakarta Hospital in 2011 the most complications were neuropathy experienced by 54% of people with Diabetes Mellitus (Center for Data and Information of the Ministry of Health of the Republic of Indonesia, 2014). Based on the 2013 Annual Report of Hospitals in East Java, Diabetes Mellitus sufferers (102,399 cases) (Profile of the East Java Health Office, 2014). Based on data from the Jombang district health office, the number of Diabetes Mellitus sufferers in 2014 was 21,992 (Jombang District Health Office, 2014). According to Piette *American Journal of Managed Care* (2012), depression in people with Diabetes Mellitus is twice as common among the general population, with 15% to 30% of diabetic patients meeting the criteria of depression. Depression was found in the Diabetes Mellitus group, in a recent study by Khuwaja *et al.* (2013) showed that 43.5% of patients who visited the Diabetes Mellitus clinic suffered depression. The number of Diabetes Mellitus cases in the Dahlia Room at RSUD Jombang in 2016 was 549 (67 %), in 2018 it increased to 582 people (72%).

Diabetes Mellitus is a lifelong disease, the death of patients with Diabetes Mellitus is caused most by complications due to it must be faced with a positive attitude sufferers (Sutedjo, 2010). Patients with Diabetes Mellitus can live long as normal people when under controlled conditions. The most appropriate attitude is to accept and be friendly with the disease. Activities that require routines, longevity are very risky for boredom, boredom, and eventually drop out, activities require a lot of money. When boredom occurs and an intention to violate compliance arises and an intention to violate compliance occurs, self-awareness must be raised that the consequences will be more dangerous and detrimental to himself and his family. A fact that what must be controlled by Diabetes Mellitus sufferers is contrary to the impulses that arise from the body, for example feeling

very hungry against limiting food, wanting to drink sweetly against abstinence from glucose, so to stay healthy live need awareness and struggle to make it happen (Sutedjo, 2010)

Blood glucose regulation is the degree of control of blood glucose in this case is the control of blood glucose because until now the blood glucose control test is the best way to find out whether blood glucose in the control limit is good or bad (Crooke, 2012). One of the most frequent psychological changes is the incidence of depression in patients with Diabetes Mellitus. Studies report that Diabetes Mellitus patients are twice as likely to experience symptoms of depression or diagnosed with depression compared to the general population (Anderson, 2012). Depression in Diabetes Mellitus contributes to neurohormonal and neurotransmitter changes that can affect glucose metabolism (Soegondo, 2009).

Emotional response in patients with Diabetes Mellitus can be feelings of anxiety, fear, and even depression that can arise for two reasons; first of what is realized such as the feeling of death, a disease that cannot be cured, shock, helplessness, guilt / sin, feeling threatened and so on. Secondly, that occurs from outside consciousness and is unable to avoid the unpleasant feeling. Anxiety is found in all disorders and mental illness and the forms are also different (Prasetyono, 2007). Anxiety can occur due to disappointment, dissatisfaction, feelings of insecurity or hostility with others, there is a fundamental difference between anxiety and fear. In the fear of what is the source of the cause, it can always be appointed in a real way, while the anxiety of the source of the cause cannot be pointed out clearly, clearly and precisely.

Lifestyle modification is a good preventative step so that Diabetes Mellitus sufferers do not experience recurrence. Relapse itself means a condition where the symptoms of the same disease as before appear and are usually more severe. Depression can be overcome by changing the way we react to a situation. Reducing Depression can be done in various ways such as regular exercise, and relaxation. Doing depression management is a form of real action to prevent recurrence of Diabetes Mellitus. Management of depression itself serves to open positive thoughts and reduce the level of depression experienced by someone (Prabowo, 2013).

RESULT AND DISCUSSION

General data

The frequency distribution table of respondents based on age in the Dahlia room at Jombang Hospital

| No | Ages | Frequency | Percentage (%) |
|-------|-------------|-----------|----------------|
| 1 | < 20 years | 0 | 0 |
| 2 | 20-35 years | 0 | 0 |
| 3 | > 35 years | 42 | 100 |
| Total | | 42 | 100 |

The table above shows that all respondents over 35 years old were 42 people (100%).

The frequency distribution table of respondents is based on education in the Dahlia Hospital Room

| Education | Frequency | Percentage (%) |
|------------------------------|------------------|-----------------------|
| 1 Primary Education (SD,SMP) | 12 | 28.6 |
| 2 Secondary Education (SMA) | 27 | 64.3 |
| 3 Higher Education | 3 | 7.1 |
| Total | 42 | 100.0 |

The table above shows that most of the respondents had secondary education (SMA) of 27 people (64.3%).

The frequency distribution table of respondents is based on work in the Dahlia Room at Jombang Hospital

| No | Employment | Frequency | Percentage (%) |
|-----------|-------------------|------------------|-----------------------|
| 1 | Employee | 14 | 33.3 |
| 2 | Unemployment | 28 | 66.7 |
| 3 | Total | 42 | 100.0 |

The table above shows that most of the respondents did not work as many as 28 people (66.7%).

The frequency distribution table of respondents is based on information in the Dahlia Room at Jombang Hospital

| Information | Frequency | Percentage (%) |
|--------------------|------------------|-----------------------|
| Ever | 42 | 100.0 |
| Never | 0 | 0 |
| Total | 42 | 100.0 |

Based on the above, it shows that all respondents have received information about 42 people (100%).

The frequency distribution table of respondents was based on information sources in the Dahlia Room at Jombang Hospital

| Information Sources | Frequency | Percentage (%) |
|----------------------------|------------------|-----------------------|
|----------------------------|------------------|-----------------------|

| | | |
|----------------|----|-------|
| Health workers | 38 | 90.5 |
| Magazine | 1 | 2.4 |
| Internet | 3 | 7.1 |
| Total | 42 | 100.0 |

The table above shows that almost all respondents received information from health workers of 38 people (90.5%).

Specific data

Anxiety

The respondent frequency distribution table is based on anxiety in Dahlia Room at Jombang Hospital on the date

| No | Depression | Frequency | Percentage (%) |
|----|------------|-----------|----------------|
| 1 | Normal | 6 | 14.3 |
| 2 | Mild | 13 | 31.0 |
| 3 | Moderate | 11 | 26.2 |
| 4 | Severe | 3 | 7.1 |
| 5 | Very heavy | 9 | 21.4 |
| | Total | 42 | 100.0 |

The table above shows that almost half (31.5%) respondents were anxious in the mild category of 13 people and were anxious in the moderate category of 11 people (26.2%).

Fear

The respondent frequency distribution table was based on fear in the Dahlia Room at Jombang Hospital

| No | Fear | Frequency | Percentage (%) |
|----|--------|-----------|----------------|
| 1 | Normal | 6 | 14.3 |
| 2 | Mild | 6 | 14.3 |

| | | | |
|-------|------------|----|-------|
| 3 | Moderate | 12 | 28.6 |
| 4 | Severe | 7 | 16.7 |
| 5 | Very heavy | 11 | 26.2 |
| Total | | 42 | 100.0 |

Table 5.7 shows that almost half (28.6%) of respondents were frightened, the medium category was 12 people and very heavy 11 respondents (26.2%).

Random blood sugar levels in type 2 diabetes mellitus patients

The frequency distribution table of respondents was based on random blood sugar levels in patients with type 2 Diabetes Mellitus in the Dahlia Room at Jombang Hospital

| Blood sugar levels | Frequency | Percentage (%) |
|--------------------|-----------|----------------|
| High | 26 | 61.9 |
| Normal | 16 | 38.1 |
| Total | 42 | 100.0 |

The table above shows that most of the respondents had high random blood sugar levels, a total of 26 people (61.9%).

The relationship between anxiety with random blood sugar levels in patients with type 2 diabetes mellitus

Cross tabulation table Anxiety relationship with random blood sugar levels in type 2 Diabetes Mellitus patients in Dahlia Room RSUD Jombang

| Anxiety | Random Blood Sugar Levels | | | | | |
|---------|---------------------------|------|------|------|-------|------|
| | Normal | | High | | Total | |
| | Σ | % | Σ | % | Σ | % |
| Normal | 6 | 14.3 | 0 | 0 | 6 | 14.3 |
| Mild | 5 | 11.9 | 8 | 19.0 | 13 | 31.0 |
| Medium | 5 | 11.9 | 6 | 14.3 | 11 | 26.2 |
| Severe | 0 | 0 | 3 | 7.1 | 3 | 7.1 |

| | | | | | | |
|--------------------------------------|----|------|----|------|----|------|
| Very Heavy | 0 | 0 | 9 | 21.4 | 9 | 21.4 |
| Total | 16 | 38.1 | 26 | 61.9 | 42 | 100 |
| $\Sigma = 0,000 \quad \Sigma = 0,05$ | | | | | | |

From the results of the *Spearman rank* statistical test, significant numbers or probability values (0,000) are significantly lower than 0.05 or ($r < a$), then H1 is accepted which means there is an association of anxiety with random blood sugar levels in patients with type Diabetes Mellitus 2 in Dahlia Room at Jombang Hospital.

The relationship to Fear with random blood sugar levels in type 2 Diabetes Mellitus patients

The cross tabulation table of fear relationships with random blood sugar levels in type 2 Diabetes Mellitus patients in the Dahlia Room of Jombang Hospital April 17-27 2018

| Fear | Random Blood Sugar Levels | | | | | |
|------------|---------------------------|------|----------|------|----------|------|
| | Normal | | High | | Total | |
| | Σ | % | Σ | % | Σ | % |
| Normal | 6 | 14.3 | 0 | 0 | 6 | 14.3 |
| Mild | 3 | 7.1 | 3 | 7.1 | 6 | 14.3 |
| Medium | 7 | 16.7 | 5 | 11.9 | 12 | 28.6 |
| Severe | 0 | 0 | 7 | 16.7 | 7 | 16.7 |
| Very Heavy | 0 | 0 | 11 | 26.2 | 11 | 26.2 |
| Total | 16 | 38.1 | 26 | 61.9 | 42 | 100 |

From the results of the *Spearman rank* statistical test, significant numbers or *probability values* (0,000) are significantly lower than 0.05 or ($r < a$), so H1 is accepted which means there is a fear relationship with random blood sugar levels in type 2 Diabetes Mellitus patients in the Dahlia Room at Jombang Hospital.

Discussion

Anxiety in patients with type 2 diabetes mellitus

Anxiety according to Nanda (2010) is feelings of discomfort or faint worries accompanied by autonomic responses, feelings of fear caused by anticipation of danger. One theory of factors that influence anxiety expressed by Stuart & Laraia (2005) when viewed and psychoanalytic terms, anxiety is an emotional conflict that occurs between the id and superego where emotional conflict

can occur if someone is experiencing serious problems with himself such as anxiety severe ones that can affect rejection / frustration behavior that can interfere with the ability to achieve the desired goal.

The opinion of researchers is based on the results of research conducted at the Jombang Regional General Hospital with most respondents experiencing severe anxiety. Severe anxiety can affect a person's mindset so that they have a poor coping view of a problem. Severe anxiety can worsen the condition of the disease so that it can cause complications in diabetes mellitus.

The average age of major depressive disorders according to Andreasen, 2001 (in Himawati, 2010) is about 40 years, of which around 50% of patients range from 20-50 years. The incidence increases at less than 20 years of age.

The researcher argues that someone who is around 40 years old has a reduced way of thinking, especially in dealing with a problem, especially the problem of DM that he suffers. With a way of thinking that is not good then the respondent when facing a problem occurs anxiety and fear in them and can even get depressed.

Fear in patients with type 2 diabetes mellitus

Fear of people with diabetes triggers patients to prefer higher sugar levels and normal values to avoid hypoglycemia. Wu et al (2011). This choice certainly has negative consequences for the survival of diabetic patients that they will tend to experience prolonged hyperglycemia and increase the risk of various complications both acute and chronic (Cryer, 2010).

People with diabetes mellitus who have experienced hypoglycemia or hypercemia will be faced with a dilemma problem between the ability to stabilize blood pressure. The experience of hypoglycemia and hyperlicemia has been shown to have a broad impact on patients, including social, emotional, and physical impacts (including death). hypoglycemia and hyperlicemia can be triggered by inaccuracies in self-care such as forgetting not to eat, improper use of medication doses, increasing excessive physical activity, or decreasing food intake

Random blood sugar levels in type 2 diabetes mellitus patients

Age is one of the causes of increased blood sugar levels. This result is in accordance with Soepono (2010), that type II diabetes mellitus is usually found in adults aged 40 years and over due to insulin resistance. Type 2 diabetes mellitus is a type of diabetes mellitus where the amount of insulin is high or normal but the number of insulin receptors found on the cell surface is reduced, so that the cells will be deficient in glucose and in the blood vessels the glucose increases (Suyono, 2010).

These results indicate that most of the respondents' ages are included in the pre-elderly age. This age has an impact on increasing blood sugar. With less activity can cause a lack of insulin sensitivity by the body, and the effect can cause blood sugar levels to increase (Andri, 2009). A person's activity affects the reduction of insulin resistance, this can affect blood sugar levels in people with Diabetes Mellitus.

The relationship between anxiety and random blood sugar levels in type 2 Diabetes Mellitus patients

Spearman rank statistical test results obtained significant numbers or probability values (0,000) significantly lower standard significance of 0.05 or ($r < \alpha$), then H_0 data is rejected and H_1 is accepted which means there is an association of anxiety with random blood sugar levels in people with diabetes Mellitus type 2 in Dahlia Room at Jombang Hospital.

Anxiety is a feeling of worry, fear that is not clear why. Anxiety in diabetics affects blood glucose fluctuations which cause unstable blood sugar levels, even though diet, physical exercise and drug use have been pursued properly. This is due to an increase in glucocorticoid hormones (cortisol), ketocollarin (epinephrine), and growth hormones. Anxiety involves feelings, behavior and physiological responses. The physiological reaction to anxiety can affect the hypothalamic pituitary axis, so that it can affect endocrine function such as increased cortisol levels which have an antagonistic effect on insulin function, and can have a negative influence on blood glucose control (Butcher, 2005).

According to respondent researchers who experience anxiety in the heavy category can make sugar levels become high, this is because anxiety in Diabetes Mellitus contributes to neurohormonal and neurotransmitter changes that can affect glucose metabolism. Anxiety that occurs continuously can raise blood sugar levels. Patients with severe anxiety will influence the increase in blood sugar levels, which will affect the healing process and affect the ability of daily life activities.

⁷ The relationship between Fear with random blood sugar levels in type 2 Diabetes Mellitus patients

Spearman rank statistical test results obtained significant numbers or probability values (0,000) significantly lower standard significance of 0.05 or ($r < \alpha$), then H_0 data is rejected and H_1 is accepted which means there is a relationship of fear with random blood sugar levels in people with diabetes Mellitus type 2 in Dahlia Room at Jombang Hospital.

People with diabetes mellitus who have had hypoglycemia will be faced with a dilemma between the desire to stabilize their high blood sugar levels by taking oral hypoglycemic drugs or insulin injections, but on the other hand the fear of recurrent hypoglycemia will force them to prefer to increase their blood sugar levels (Lundkvist, et al, 2005). Under stress, ACTH increases. This increase in ACTH can activate the adrenal cortex to secrete glucocorticoid hormones, especially cortisol (hydrocortison) (Sholeh, 2010).

Individuals who have high self efficacy will have an effect on the individual's thinking, motivation, mood and physical health so that the stressor is considered a challenge. The experience of hypoglycemia and hyperglycemia can create fears that eventually lead to traumatic feelings, but these conditions raise awareness for sufferers to prevent so that the incident does not recur. That awareness arises from unpleasant experiences experienced before. The response that arises from alertness is a change in positive behavior experienced by sufferers to always maintain their physical condition stable.

The results also showed that all respondents had received information regarding 42 diabetes mellitus (100%). Based on table 5.5 shows that almost all respondents get information sources from health workers of 38 people (90.5%).

Other support that is considered important is family support. Family support is a condition that is beneficial to individuals that is obtained from other people who can be trusted, so that someone will know that there are other people who pay attention, respect and love them (Setiadi, 2008).

⁵ Family support is very useful in controlling a person to the level of anxiety, fear and can also reduce the pressures that exist in the conflict that occurs in him. Support is in the form of encouragement, motivation, empathy, or assistance that can make other individuals feel more calm and safe. Other coping sources needed for people with diabetes who experience hypoglycemia are social support such as neighbors, or other people who can also be obtained from learning from other people who experience the same pain.

CONCLUSION

1. Anxiety in patients with type 2 Diabetes Mellitus in the Dahlia Room at Jombang Hospital is mild
2. Fear in patients with type 2 diabetes mellitus in the Dahlia Room at Jombang Hospital is moderate
3. Random blood sugar levels in patients with type 2 Diabetes Mellitus in the Dahlia Room at Jombang Hospital are high
4. There is a relationship between anxiety and random blood sugar levels in patients with type 2 Diabetes Mellitus in the Dahlia Room at Jombang Hospital
5. There is a fearful relationship with random blood sugar levels in patients with type 2 Diabetes Mellitus in the Dahlia Room at Jombang Hospital.

RECOMMENDATIONS

For nurses

Can pay attention to the condition of the elderly both physically and psychologically and the family of patients with type 2 diabetes mellitus must always be fully involved (such as assisting patients with type 2 diabetes in difficult conditions) because the role of health workers plays a role in reducing sufferers' anxiety and fear.

For Further Researchers

For further researchers, the authors suggest examining other variables that also influence the blood sugar levels of type 2 Diabetes Mellitus patients, with in-depth interviews and observations, perfecting the measuring instruments and expanding the research subject so that they get more complete data.

For respondents

Can provide adequate education and information for patients with type 2 and family diabetes mellitus, such as lifestyle, life patterns and daily adaptation, personality strength and interests.

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