

# MODE OF INSULIN, GENDER AND EDUCATION AS DETERMINANT OF PSYCHOSOCIAL PROBLEMS OF PATIENTS WITH TYPE II DIABETES

SHIRMEEN IJAZ<sup>1</sup>, SUBHA MALIK<sup>2</sup>, AMINA MUZZUM<sup>3</sup>

<sup>1</sup>PhD Scholar, Department of Applied Psychology, Lahore College for Women University, Lahore, Pakistan

<sup>2</sup>Assistant Professor, Department of Applied Psychology, Lahore College for Women University, Lahore, Pakistan

<sup>3</sup>Tenured Associate Professor, Department of Applied Psychology, Lahore College for Women University, Lahore, Pakistan

Submitted: January 12, 2019

Accepted: September 24, 2019

**CORRESPONDENCE: DR. AMINA MUZZUM** E-mail: amina\_muazzum@hotmail.com

## ABSTRACT

### OBJECTIVE

To find out the Mode of Insulin, Gender and Education as Determinant of Psychosocial Problems of Patients with Type II Diabetes.

### STUDY DESIGN

Cross-sectional research design.

### PLACE AND DURATION OF THE STUDY

Data was collected from different hospitals and diabetic institutes of Lahore from 2015-2017.

### SUBJECTS AND METHODS

Sample consist of 395 participants with an age range of 30-60 years ( $M=47.19$ ,  $SD=8.76$ ). Sample was selected through purposive sampling technique after fulfilling preset inclusion and exclusion criteria. Psychosocial problems scale for type II diabetes (PPSTD) was used as research tool while age, gender and monthly income was noted on demographic Performa.

### RESULTS

Results indicated that there was a significant gender difference in the psychological problems ( $p = .004$ ) and sexual life satisfaction ( $p = .005$ ) of patients having type II diabetes. Results also indicated that education had a significant effect on the social ( $p = .001$ ) and sexual life satisfaction ( $p = .039$ ) of patients with type II diabetes. Monthly income also had an effect on the social problems ( $p = .000$ ) of patients. Moreover, mode of insulin effects the sexual life satisfaction ( $p = .000$ ) of patients.

### CONCLUSION

It was concluded that mode of Insulin, gender and education are the determinant of psychosocial problems among patients with type II diabetes.

### KEY WORDS

Psychosocial problems, Sexual life satisfaction, Sugar patients.

## INTRODUCTION

To live with diabetes is very challenging and can cause many psychosocial factors like behavioral, social and emotional issues. These problems not only effect the health of a person but also effect the person's ability to manage diabetes.<sup>1</sup> In type II diabetes, body is unable to properly utilize insulin. In the beginning, to maintain the normal level of blood glucose, pancreas produce enough insulin but with the passage of time pancreas failed to produce enough insulin.<sup>2</sup> The symptoms of type II diabetes include, excessive thirst, increased hunger, fatigue, excessive urination, loss of weight, vision gets blur, slow healing and numbness in hands or feet. Type II diabetes may also lead to serious complications as heart diseases, nerve damage, blindness and kidney damage.<sup>3</sup>

The prevalent cases of type 2 diabetes were estimated more than 500 million worldwide in 2018.<sup>4</sup> In Pakistan, 11.77% is the current prevalence of type 2 diabetes mellitus. The prevalence in females is 9.19% but in males 11.20%. In the province of Punjab, the mean prevalence is 12.14% in males and 11.70% in females; while it is 16.2% in males and 11.70% in females in Sindh province. In Khyber Pakhtunkhwa (KPK) the mean prevalence among males is 9.2% but 11.60% among females; the mean prevalence of type 2 diabetes is 13.3% among males and 8.9% in females in Baluchistan province. In rural areas of Pakistan, the prevalence of type 2 diabetes mellitus is 10.34% while 14.81% in urban areas. The prevalence of type 2 diabetes mellitus is more common in urban areas compared with the rural areas and higher in males than females.<sup>5</sup>

Diabetes is a chronic disease which effects the patient's life badly and cause many psychosocial problems and also effect the patient's marital life. It has also been found from the researches that patients with type II diabetes experience many psychological and social problems like crying, fear, anger, impotence feeling or being out of control,<sup>6,7</sup> Relatives' negative attitude, difficulty in following the treatment regimen and to fulfil their familial responsibilities,<sup>8,9</sup> negative attitude towards insulin etc.<sup>10</sup> Previous literature also indicated that male patients had lesser social worries, significantly more satisfied, lesser stress due to the illness, rated their health as being better and higher score on positive well-being.<sup>11</sup> It was also found that female patients reported more emotional distress than men.<sup>12</sup>

Type II diabetes not only causes psychosocial problems but also effects the patient's sexual life. Pedersen, Giraldo, Kristensen, Lauritzen, Sandb, and Charles (2015) conducted a research to find out the Prevalence of sexual desire and satisfaction among diabetic patients. It was found that 10% women experienced low sexual satisfaction whereas 14% men experienced low sexual satisfaction.<sup>13</sup> Another research was conducted by Bjerggaard, Charles, Kristensen, Lauritzen, Sandbæk and Giraldo, (2015). They found that 42% of women and 57% of men reported failure to fulfil their sexual needs; 31% of men and 10% of women stressed upon having a good sexual life.



Along with this, 11% of women and 32% of men reported they experienced sexual distress.<sup>14</sup>

Patient's education and income also effects the sexual life of patients. It was also found from researches that higher education has least correlation to erectile dysfunction (ED) in men (71%) as compared with those who have primary or less education have 95% ED.<sup>15</sup> Women who were living in rural areas and less educated had more sexual problems.<sup>16</sup> Diabetic patients having high income and social support is linked with "relatively successful social functioning."<sup>17</sup> It was also found that diabetic patients on insulin injections had significantly lower sexual satisfaction<sup>18</sup> and diabetic women experienced low overall sexual satisfaction than non diabetic women. Moreover, insulin-treated diabetic women were at higher risk.<sup>19</sup> There is no known cure for diabetes, still it can be managed efficiently by monitoring the blood sugar and to reduce its symptoms and minimize the complications that may arise by the use of various medications.<sup>20</sup>

Diabetes is a chronic condition which can lead to serious health and economic consequences. Patients with type 2 diabetes face alot of psychosocial problems and there are different demographic factors which are linked with these problems like male patients experienced more sexual problems than female patients.<sup>14</sup> On the other hand female patients experienced more psychological problems than male.<sup>11</sup> Similarly, patients having low education<sup>21</sup> and low income<sup>17</sup> faced more social problems and those patients who used oral medication and injection both for treatment faced more sexual problems. These are the findings of western culture so there is a need to investigate how demographic factors and mode of insulin effects psychosocial problems of patients with type II diabetes in pakistan. For that purpose present study aimed to find out the effect of Mode of Insulin, Gender, Education, and monthly income on the Psychosocial Problems of Patients with Type II Diabetes. This study hypothesized that:

1. There would be a significant gender difference in the social problems, sexual life satisfaction and psychological problems of patients with type II diabetes.
2. There would be a significant effect of education on the social problems, sexual life satisfaction and psychological problems of patients with type II diabetes.
3. There would be a significant effect of monthly income on the social problems, sexual life satisfaction and psychological problems of patients with type II diabetes.
4. There would be a significant effect of type of insulin taken on the social problems, sexual life satisfaction and psychological problems of patients with type II diabetes.

## SUBJECTS AND METHODS

**Participants.** 395 patients having type II diabetes participated in the study. Sample consisted 202 men and 193 women with an age range of 30 to 60 years ( $M=47.19$ ,  $SD=8.76$ ). Purposive sampling technique was used for sample selection. Data was collected from diabetic institute of Pakistan (DIP), Jinnah hospital Lahore. Only patients with type II diabetes were included in the study, whose ages were ranged between 30 years to 60 years. Unmarried patients, Pre-diabetics, type I diabetics and gestational diabetics were excluded from the study. Patients below 30 years and above 60 years were excluded from the study.

## INSTRUMENTS

**Psychosocial problem scale for type II diabetes.** Psychosocial problems scale for type II diabetes (PPSTD) is a 5 point Likert scale. PPSTD has 45 items and consists of 3 subscales i.e sexual, social and psychological. These subscales contain 7, 22 and 16 items respectively. Overall scale's alpha reliability is .96 whereas reliability of psychological subscale is .81, social subscale is .95 and sexual subscale is .87. KMO is .91.<sup>22</sup> Demographic form was developed to gather information about gender, education, monthly income, type of insulin taken.

**Procedure.** The study was approved by institutional ethical board. After taking permission from the administration of diabetic institutions, patient's consents were taken after thorough introduction of study. They were also assured that their provided information will remain confidential. Instructions were given to all the participants about the questionnaire. They were also requested not to leave any item unanswered and to give honest responses. The research protocol was administered individually. After collecting data, it was statistically analysed through SPSS 21.

## RESULTS

Before proceeding for formal analysis normality check was run to see sampling normality and adequacy. Table 1 showed the demographic characteristics of the sample. There was an almost equal proportion of men and women in the study. As far as education of the participants is concerned, participants having education above masters were less in number. There was also an equal number of participants in the subcategories of monthly income and majority of the participants were on oral medication.

**Table 1**  
Frequency and percentage of demographic characteristics of the participants (N=395)

| Variables             | Male<br>f | Female<br>f | Total<br>f |
|-----------------------|-----------|-------------|------------|
| <b>Gender</b>         | 202       | 193         | 395        |
| <b>Education</b>      |           |             |            |
| Uneducated            | 56        | 77          | 133        |
| Matric to FA          | 70        | 58          | 128        |
| BA to MA              | 68        | 54          | 122        |
| Above MA              | 8         | 4           | 12         |
| <b>Monthly income</b> |           |             |            |
| Below 50,000          | 86        | 112         | 198        |
| Above 50,000          | 116       | 81          | 197        |
| <b>Insulin</b>        |           |             |            |
| Oral                  | 104       | 102         | 206        |
| Injection             | 72        | 64          | 136        |
| Both                  | 26        | 27          | 53         |

**Table 2**  
One-way ANOVA for Mode of Insulin, Gender, Education and Monthly Income on Psychosocial Problems (N = 395)

| Gender         | Male<br>N=202         |       | Female<br>N=193       |       | F                 | p     |                  |       |      |     |
|----------------|-----------------------|-------|-----------------------|-------|-------------------|-------|------------------|-------|------|-----|
|                | M                     | SD    | M                     | SD    |                   |       |                  |       |      |     |
| Social         | 52.04                 | 24.47 | 55.60                 | 25.56 | 1.99              | .15   |                  |       |      |     |
| Sexual         | 17.31                 | 7.60  | 15.07                 | 7.81  | 8.32              | .00   |                  |       |      |     |
| Psychological  | 24.59                 | 8.63  | 26.96                 | 8.19  | 7.84              | .00   |                  |       |      |     |
| Education      | Uneducated<br>N=130   |       | Matric to FA<br>N=128 |       | BA to MA<br>N=122 |       | Above MA<br>N=12 |       | F    | p   |
|                | M                     | SD    | M                     | SD    | M                 | SD    | M                | SD    |      |     |
| Social         | 46.60                 | 30.93 | 58.07                 | 20.55 | 57.29             | 20.71 | 52               | 20.02 | 5.92 | .00 |
| Sexual         | 14.78                 | 8.97  | 17.22                 | 6.39  | 16.91             | 7.49  | 14.41            | 8.05  | 2.81 | .03 |
| Psychological  | 25.65                 | 7.39  | 25.39                 | 8.70  | 26.34             | 9.09  | 24.66            | 11.79 | .34  | .79 |
| Monthly income | Below 50,000<br>N=197 |       | Above 50,000<br>N=198 |       | F                 | p     |                  |       |      |     |
|                | M                     | SD    | M                     | SD    |                   |       |                  |       |      |     |
| Social         | 58.86                 | 22.24 | 48.73                 | 26.65 | 16.79             | .00   |                  |       |      |     |
| Sexual         | 15.81                 | 7.20  | 16.63                 | 8.30  | 1.09              | .29   |                  |       |      |     |
| Psychological  | 25.18                 | 8.17  | 26.32                 | 8.79  | 1.78              | 1.83  |                  |       |      |     |
| Insulin        | Oral<br>N=206         |       | Injection<br>N=136    |       | Both<br>N=53      |       | F                | p     |      |     |
|                | M                     | SD    | M                     | SD    | M                 | SD    |                  |       |      |     |
| Social         | 44.64                 | 26.48 | 64.51                 | 19.79 | 61.81             | 16.44 | 33.75            | .00   |      |     |
| Sexual         | 14.50                 | 8.29  | 16.78                 | 6.55  | 21.43             | 5.95  | 18.80            | .00   |      |     |
| Psychological  | 24.93                 | 8.67  | 26.23                 | 7.94  | 27.71             | 8.88  | 2.61             | .07   |      |     |

Note. \*p <.05, \*\*p<.01

Table 2 indicated significant mean differences across varying demographics. Results indicated that there was a significant gender difference in the psychological problems and sexual life satisfaction of patients having type II diabetes but no significant difference was found with reference to social problems. Table also indicated that monthly income also had an effect on the social problems of patients but on the other hand, no significant results were found with reference to sexual life satisfaction and psychological problems of the patients. Significant effect was found of education and mode of insulin on the social and sexual problems of patients but no significant effect was found on the psychological problems. Post hoc analysis indicated that patients having education from matric to FA and BA to MA faced more social problems whereas

more sexual problems were faced by patients having education from matric to FA. Similarly, insulin injections or injections along with diabetes pills were linked with social problems and less sexual satisfaction.

### DISCUSSION

Diabetes is becoming a deadly disease globally and the prevalence of diabetes is also very high in the world which is still increasing rapidly. Living with diabetes is by no means easy.<sup>23</sup> Current research hypothesized that there would be a significant gender difference in the social problems, sexual life satisfaction and psychological problems of patients with type 2 diabetes. Findings are consistent



with the previous literature which indicated that male patients experience more sexual problems<sup>13,14</sup> and female experience more psychological problems.<sup>11,24,25</sup> On the other hand, no significant gender difference was found in the social problems of patients with type II diabetes. But previous literature indicates that male experience less social worry.<sup>26</sup>

Current research was also aimed to find out the effect of education on the social problems, sexual life satisfaction and psychological problems of patients with type II diabetes. It was found from the present research that patients who were less educated face more social<sup>21,27</sup> and sexual problems<sup>16</sup> but no significant effect was found of the educational level on the psychological problems of the patients. Findings of the current research was also supported by the previous literature.

Another hypothesis of the research was that there would be a significant effect of monthly income on the social problems, sexual life satisfaction and psychological problems of patients with type II diabetes. It was found that patients with low monthly income face more social problems as compared to high income patients. Findings of the current research is consistent with the findings of the previous researches and it was found that poorer persons have fewer supportive social ties and also are at higher risk of social isolation.<sup>28,29</sup> But no effect of income was also found with reference to sexual life satisfaction and psychological problems. Previous literature also indicated that income is not significantly associated with depression<sup>30</sup> but no research was found with reference to the effect of income on the sexual life satisfaction.

It was also hypothesized that there would be a significant effect of mode of insulin on the social problems, sexual life satisfaction and psychological problems of patients with type II diabetes. Findings of the current research indicate that patients who took insulin along with diabetes pills faced more sexual problems. Previous literature indicated that diabetic patients use insulin injections had significantly lower sexual satisfaction.<sup>18</sup> As far as social problems are concerned, patients who were only on insulin face more social problems. Previous literature also indicated that patients feel socially embarrassed and rejected in case of using syringes in a public place that's why they hide their insulin injection routines from others.<sup>31,32</sup> On the other hand, no significant difference was found with reference to psychological problems which is not consistent with the findings of previous literature. Previous literature suggested that significantly more diabetes distress was experienced by those type II diabetic patients who were on insulin than those who were not on insulin.<sup>32</sup>

### CONCLUSION:

Diabetes affects the patients life very badly. Along with the disease there are other demographic variables like gender, education, monthly income and mode of Insulin which are the determinant of psychosocial problems among patients with type II diabetes. The findings of the study are helpful for psychiatrists and psychologists. So that they can guide patients about how to handle their psychosocial problems by keeping in view the mentioned demographic variables.

### ACKNOWLEDGEMENT:

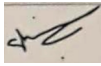
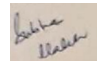
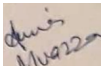
I am greatly thankful to Almighty ALLAH, who enabled me to complete this research project. I am deeply indebted to Ms. Zarina

Ijaz, Mr. Rana Arshad Hameed, Dr Tazvin Ijaz and Sir Mohsin Nawaz for their continuous support. I am also thankful for all the participants for their time and co-operation.

### REFERENCES

1. Kirkwood, M. The American Diabetes Association Releases Psychosocial Recommendations for Medical Providers. Retrieved from <http://www.diabetes.org/newsroom/press-releases/2016/ada-releases-psychosocial-recommendations-for-medical-providers.html>. (2016).
2. American diabetes association. Type 2. Retrieved from <http://www.diabetes.org/diabetes-basics/type-2/?loc=db-slabnav>. 2018
3. Dansinger M. Symptoms of type 2 diabetes. Retrieved from <https://www.webmd.com/diabetes/type-2-diabetes-symptoms>. 2019
4. Kaiser A, Zhang N, Pluijm WVD. Global Prevalence of Type 2 Diabetes over the Next Ten Years (2018-2028). *Diabetes*. 2018; 67:202.
5. Meo SA, Zia I, Bukhari IA, Arain SA. Type 2 diabetes mellitus in Pakistan: Current prevalence and future forecast. *J Pak Med Assoc*. 2016;66(12):1637-1642.
6. Saudek MD, Christopher D. Johns Hopkins guide to diabetes: for today and tomorrow. USA: The Johns Hopkins University Press. 1997.
7. Kaur G, Tee G, Ariaratnam S, Krishnapillai AS, China K. epression, anxiety and stress symptoms among diabetics in Malaysia: a cross sectional study in an urban primary care setting. *BMC Fam Pract*. 2013;14(1):69.
8. Ijaz S, Ajmal MA. Experiencing Type II Diabetes in Pakistan. *Pak J Soc Clin Psychol*. 2011;9:50-56.
9. Feng X, Astell-Burt T. Impact of a type 2 diabetes diagnosis on mental health, quality of life, and social contacts: a longitudinal study. *BMJ Open Diabetes Res Care*. 2017;5: 1-5.
10. Vinter-Repalust N, Petrièek G, Katiæ M. Obstacles which Patients with Type 2 Diabetes Meet while Adhering to the Therapeutic Regimen in Everyday Life: Qualitative Study. *Croat Med J*: 2004;45(5): 630-636.
11. Roupá Z, Lahana I, Koulouri A, Sotiropoulou P, Makrinika E, Marneras X, et al. Anxiety and depression in patients with type 2 Diabetes mellitus, depending on sex and body mass index. *Health Sci J*. 2009;3:32-40.
12. Kausar R, Awan B, Khan N. Gender Differences in Risk Perception and Emotional Distress in Patients with Type 2 Diabetes. *J Indian Acad Appl Psychol*. 2013;39:222-227.
13. Pedersen MB, Giraldi A, Kristensen E, Lauritzen T, Sandbk A, Charles M. Prevalence of sexual desire and satisfaction among patients with screen-detected diabetes and impact of intensive multifactorial treatment: Results from the ADDITION-Denmark study. *Scand J Prim Health Care*. 2015;33(1):3-10.
14. Bjerggaard M, Charles M, Kristensen E, Lauritzen T, Sandbæk A, Giraldi A. Prevalence of Sexual Concerns and Sexual Dysfunction among Sexually Active and Inactive Men and Women with Screen-Detected Type 2 Diabetes. *Sex Med*: 2015; 3:302-310.
15. AlMogbel TA. Erectile Dysfunction and Other Sexual Activity Dysfunctions among Saudi Type 2 Diabetic Patients. *Int J Health Sci*. 2014;8(4):347-59.
16. Bak E, Foltyn A, Marcisz C, Krzeminska S, Dobrzyn-Matusiak D, Drosdzol-Cop A. Relationships of sexual dysfunction with depression and acceptance of illness in women and men with type 2 diabetes mellitus. *Int. J. Environ. Res. Public Health*. 2017;

- 14(9):1073.
17. Mertens V, Bosma H, Groffen D, Van-Eijk TJ. Good friends, high income or resilience? What matters most for elderly patients? *Eur J Public Health*. 2011; 22: 666–671.
  18. Piatkiewicz P, Maksymiuk-Klos A, Krasuski T, Owczarek K. Sexual dysfunction in diabetic patients - An important and overlooked complication. *Clin Diabeto*. 2017; 6: 119-125.
  19. Copeland KL, Brown JS, Creasman JM, Van DESK, Subak LL, Thom DH, et al. Diabetes mellitus and sexual function in middle-aged and older women. *Obstet Gynecol*. 2012; 120(2):331–340
  20. Wang HC, Lee AR. Recent developments in blood glucose sensors. *J Food Drug Anal*. 2015; 23(2): 191-200.
  21. Venkatraja B, Indira M. Role of Education in Social Development: An Empirical Analysis. *MPJSS*. 2011; 16(1): 1-11.
  22. Ijaz S, Muazzam A, Malik S. Development and validation of psychosocial problem scale for type II diabetes (PPSTD). (Unpublished doctoral dissertation). LCWU, Lahore, Pakistan. 2018.
  23. Ali H, Anwar M, Ahmad T, Chand N. Diabetes Mellitus from Antiquity to Present Scenario and Contribution of Greco-Arab Physicians. *Jishim* 2006; 5: 46-50.
  24. Khuwaja AK, Lalani S, Dhanani R, Azam IS, Rafique G, White F. Anxiety and depression among outpatients with type 2 diabetes: A multi-centre study of prevalence and associated factors. *Diabetol Metab Syndr*. 2010; 2: 72.
  25. Almawi W, Tamim H, Al-Sayed N, Arekat MR, Al-Khateeb GM, Baqer A, et al. Association of comorbid depression, anxiety, and stress disorders with Type 2 diabetes in Bahrain, a country with a very high prevalence of Type 2 diabetes. *J Endocrinol Invest*: 2008; 31: 1020-4
  26. Kausar R, Awan B, Khan N. Gender Differences in Risk Perception and Emotional Distress in Patients with Type 2 Diabetes. *J Indian Acad Appl Psychol*: 2013; 39: 222-227.
  27. Silles MA. The causal effect of education on health: evidence from the United Kingdom. *Econ Educ Rev*: 2009; 28: 122–8.
  28. Oakley A, Rajan L. Social class and social support: the same or different? *Socio*: 1991; 25: 31–59.
  29. Turner RJ, Marino F. Social support and social structure: a descriptive epidemiology. *J Health Soc Behav*: 1994; 35: 193-212.
  30. Ahmad A, Abujbara M, Jaddou H, Younes NA, Ajlouni K. Anxiety and Depression Among Adult Patients with Diabetic Foot: Prevalence and Associated Factors. *J Clin Med Res*. 2018; 10(5): 411-418.
  31. Meryl B, Jens HK, Suzanne L, Torsten LC. Psychological insulin resistance: patient beliefs and implications for diabetes management. *Qual Life Res*, 2009; 18(1): 23-32.
  32. Hayes RP, Bowman L, Monahan PO, Marrero DG, McHorney CA. Understanding diabetes medications from the perspective of patients with type 2 diabetes: prerequisite to medication concordance. *Diabetes Educ*. 2006; 32(3): 404-414.

| Sr. | Author Name      | Affiliation of Author                       | Contribution  | Signature   |
|-----|------------------|---|---|---|
| 1   | Shirmeen Ijaz    | Lahore College for Women University, Lahore | Literature review, design questionnaire, data collection                                  |    |
| 2   | Dr Subha Malik   | Lahore College for Women University, Lahore | Data analysis, data interpretation and manuscript evaluation                              |    |
| 3   | Dr Amina Muazzam | Lahore College for Women University, Lahore | Designing the questionnaire, data analysis, data interpretation and manuscript evaluation |  |