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Original Article

Socioeconomic Inequality in Perceived Need for Mental Healthcare in Patients with Type 2 Diabetes Mellitus in Hamadan, Western Iran

Shiva Borzouei[1], Salman Khazaei[2], Mohammadmahdi Kanooni Sabet[3], Maryam Parastesh[3], Sedigheh Mafakheri[2], Erfan Ayubi[4*]

[1]Department of Endocrinology, School of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran
[2]Department of Epidemiology, School of Health, Hamadan University of Medical Sciences, Hamadan, Iran
[3]Student Research Committee, Hamadan University of Medical Sciences, Hamadan, Iran
[4]Social Determinants of Health Research Center, Hamadan University of Medical Sciences, Hamadan, Iran

Abstract

Background and aims: The use of mental healthcare services in type 2 diabetes mellitus (T2DM) patients can depend on socioeconomic status (SES). The current study aimed to evaluate socioeconomic inequality in the perceived need for mental healthcare in patients with T2DM in Hamadan, Western Iran.

Methods: This cross-sectional study was conducted between March and July 2023 in Hamadan, Western Iran. The study included T2DM patients who were referred to the Diabetes Center of Hamadan. The variables included in the study were demographics, SES, health insurance status, social support, and self-rated mental health. The outcome of interest was the perceived need for mental healthcare. The socioeconomic inequality was evaluated using concentration index and decomposition analysis.

Results: A total of 393 patients (mean age: 56.48 ± 10.65, 62% female and 88% urban inhabitants) were enrolled. The prevalence of perceived need for mental healthcare was 43%, and 50.30% of the patients (85) had delay/avoidance of mental healthcare services. The concentration index (95% confidence interval) of perceived mental healthcare needs was -0.24 (-0.18, -0.30), indicating that perceived needs are more concentrated in the socio-economically disadvantaged patients. Decomposition analysis revealed that low economic status and illiteracy were the main contributors to the inequality (approximately 50%). Cost, minimization, and stigma were the most frequently reported reasons for avoidance/delay of mental healthcare services, respectively.

Conclusion: There was a pro-poor socioeconomic inequality in perceived need for mental healthcare among T2DM patients. Healthcare policies and facilities to reduce socioeconomic inequality should mainly focus on disadvantaged T2DM patients.

Keywords: Socioeconomic factors, Health inequities, Mental health services, Health services needs and demand, Diabetes mellitus

***Corresponding Author:**
Erfan Ayubi,
Email: aubi65@gmail.com

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Introduction

Statistics showed that one in every 11 adults has diabetes mellitus, with approximately 90% of cases being attributed to type 2 diabetes mellitus (T2DM).[1] It has been estimated that the number of diabetes cases can exceed 640 million by 2040.[2] Diabetes presents specific challenges for those affected. They are also vulnerable to various illnesses and multiple complications. Notably, psychological disorders are recognized as significant comorbidities in diabetic patients, demanding careful attention.[3] The nature of diabetes and its complications can cause diabetic patients to endure a high level of diabetes distress[4], depression, and anxiety symptoms.[5-7] The development and progression of mental symptoms are influenced by factors such as the patient's health status, demographic, socioeconomic status (SES), social support, and comorbidities.[8-11] The lack of timely diagnosis and treatment of mental symptoms and also the neglect of associated risk factors can lead to the development of severe forms of mental health problems in T2DM patients. This, in turn, can affect patients' self-care, treatment adherence, quality of life, and the course of diabetes.[12,13]

Given the prevalence of mental symptoms in diabetic patients, it can be expected that they perceive the need for mental healthcare services. It is crucial that there is no delay in receiving these services, and patients should not avoid seeking them. Although the need is perceived, they may not actively seek professional help, and also the assurance of receiving appropriate care remains uncertain.[14-16]

Unmet need occurs when someone needs health care but does not receive or seek services.[17,18] Even though several

factors are introduced as reasons for the unmet need for mental healthcare, SES can play a prominent role in the unmet need for healthcare.[19,20] Exploring socioeconomic inequality in the unmet need for mental healthcare and identifying essential contributors to the disparity can help to organize healthcare services for truly needy patients. Considering the above-mentioned issues, the current study aimed to assess and decompose socioeconomic inequality in the perceived need for mental healthcare among T2DM in Hamadan, Western Iran.

Materials and Methods

Type of Study

This cross-sectional study was conducted at the Hamadan University of Medical Sciences, Hamadan, Iran.

Study Population

T2DM patients who used oral antidiabetic drugs, insulin, or a combination of these two medications were included in the study. Eligibility criteria included an age above 30 years, a diagnosis of T2DM within the last 6 months, the absence of physical chronic diseases (such as cancer, lung disease, hemodialysis, and autoimmune diseases), and the absence of mental illnesses. Those who used medications for mental disorders were excluded.

Sample Size

Considering an expected proportion (p) of 50% for the prevalence of perceived need for mental healthcare, a confidence level of 95% ($z_{1-\frac{\alpha}{2}}=1.96$), and precision (d) of 0.05, the minimum sample size was estimated to be 384 patients.

Sampling Method

Patients were consecutively recruited from the Diabetes Center of Hamadan from March to July 2023.

Data Collection Method

At first, informed consent was obtained from patients. They were interviewed face-to-face to complete the questionnaires. Information regarding demographic and SES characteristics, diabetic-related factors, social support, perceived need for mental healthcare, and reasons for delay and avoidance of healthcare services was collected. The demographic and SES checklist included questions about gender, age, marital status, education level, occupation, residency, household size, income, challenges in household expenses in the last six months, and health insurance status. The economic status (wealth index) was constructed using household assets, including a washing machine, side-by-side refrigerator, dishwasher, microwave, PlayStation/Xbox console, > 49-inch smart TV, and type of home ownership (owner or tenant). The response to questions about the household assets was recorded as yes or no. Diabetes-related factors included questions about the duration of diabetes and its complications. Social support was evaluated through seven questions. These questions encompass various types of support that patients can receive for the control and management of their disease.[10,21] Patients were asked about support from people in their surroundings (family, friends, neighbors, and relatives) for healthcare visits/transportation, remembering medication, purchasing and preparing food, remembering to do exercise, emotional support, financial support, and remembering to check blood sugar. The patients responded to social support questions with the following options: (1) I receive no support, (2) I often receive support, and (3) I always receive support. Next, we merged options 2 and 3, considering them as having support. Each question was defined as a binary variable: 0 (without support) and 1 (with support). Moreover, self-rated mental health was evaluated using a single item that captures how mentally healthy patients think they are. The scores ranged from 0 to 100, where higher scores indicate a better level of mental health. Next, the scores were divided into four equal categories.

Perceived need for mental healthcare was assessed using the following question: "Was there a time when you wanted to ask someone for help or seek help for problems such as depression, anxiety, and stress in the past year?". Moreover, avoidance/delay of mental health services was assessed using the following question: "Did you have a delay in receiving services when you needed them?". The validity and reliability of these two questions in capturing the unmet need for mental healthcare have been documented previously.[22,23]

Statistical Analysis

Patients' characteristics were presented using frequencies and percentages. Principal component analysis (PCA) was employed to construct SES using occupation, education, and household assets. The score of the first component that explained the highest variance was predicted and then divided into SES quintiles from the poorest (Quintile 1) to the richest (Quintile 5). The effect of SES quintiles and other covariates on the perceived need for mental healthcare was modeled using binary logistic regression. The analysis was conducted in two scenarios: univariate and multiple. The significant covariates ($P \leq 0.05$) from the univariate analysis were considered for the multiple logistic regression analysis. The concentration curve and index were employed to identify socioeconomic inequality in the perceived need for mental healthcare. The concentration index ranges from -1 to + 1. A value of zero indicates equality. Negative values indicate that the perceived needs for mental health are concentrated in more disadvantaged patients (with the concentration curve lying above the equality line). Positive values indicate a greater concentration of perceived needs for health in advantaged patients (with the concentration curve lying below the equality line). The concentration index was estimated using the user-written Stata command conindex.[24] **Next,** following Wagstaff et al,[25] the contribution of each SES component to inequality was

estimated using the decomposition of the concentration index. This decomposition was carried out using a linear regression:

$$y = \alpha + \sum_k \beta_k x_k + \varepsilon \quad \text{Eq. (1)}$$

The concentration index of y, C is as follows:

$$C = \sum_k \left(\frac{\beta_k \bar{x}_k}{\mu} \right) C_k + \frac{GC_\varepsilon}{\mu} \quad \text{Eq. (2)}$$

Where μ is the mean of y, $\bar{x}_k$ is the mean of x, and C_k is the concentration index of the exploratory variable. $\frac{\beta_k \bar{x}_k}{\mu}$ is known as Elasticity and indicates the effect of each explanatory variable on the outcome of interest. The product $\left(\frac{\beta_k \bar{x}_k}{\mu}\right) C_k$ represents the contribution of each SES component in inequality. The dividing $\left(\frac{\beta_k \bar{x}_k}{\mu}\right) C_k$ by the summation of contributions or the concentration index C indicates the percentage contribution. The last term, GC_ε, is the generalized concentration index for the error term (ε). The outcome in the current study is a dichotomous variable, then Equation (1) is utilized for estimation using the logit link function as follows:

$$Ln\, odds_{perceived\ need} = \alpha + \sum_k \beta_k x_k + \varepsilon \quad \text{Eq. (3)}$$

and the coefficients of the explanatory variables (from the logit model) are entered in equation 2.

Statistical analyses were performed using STATA version 14.0. Decomposition analysis was visualized using the ggplot2 package in R software.

Results

A total of 393 T2DM patients with a mean age of 56.48 ± 10.65 years were enrolled in the study. Based on the results, 62.09% of the participants were female. The prevalence rate (95% CI) of perceived need for mental health care was 43% (38%, 48%). The prevalence rate of avoidance/delay of healthcare services among those with perceived need was 50% (42%, 58%).

Table 1 presents the cross-tabulation of patients' characteristics and perceived needs, along with the corresponding ORs and their 95% CIs. Patients with perceived need were predominantly female (71.60%), had a primary education level or were illiterate (57.40%), were unemployed (64.67%), and were urban inhabitants (82.53%). Approximately 79% of patients with perceived need had a monthly income lower than $200, and 59% fell into the poor economic (wealth index) category. Most patients with perceived need belonged to disadvantaged groups, whereas patients without perceived need were predominantly from advantaged groups. The prevalence of perceived need among patients in the first quintile of SES was 32.93%. The corresponding figure in the fifth quintile was 8.54%. Compared to patients without perceived need, those with perceived need reported more difficulty covering necessary household expenses in the last six months. Additionally, they were more likely to be uninsured or have poor health insurance coverage.

Approximately 49% of patients with perceived need reported a self-rated mental health score lower than 50. In contrast, the corresponding figure for patients without perceived need was nearly 25%. The frequency of support for health care visits/transportation, purchasing and preparing food, remembering medication, exercising, and blood sugar checking in patients with and without perceived need was similar; however, patients with perceived needs reported less emotional and financial support. After univariate analysis, patients' characteristics, including gender, marital status, residence, size of the household, challenge in household expenses, health insurance status, self-rated mental score, emotional support, financial support, and SES, were considered for multiple analyses ($P \leq 0.05$).

The results of the multiple analysis are presented in Table 2. Females were 2.44 times more likely than males to experience perceived need in the last year. The odds of perceived need increased by 97% in patients facing challenges in providing household expenses. Health insurance coverage decreased the odds of a perceived need by 60% to 80%. Patients receiving financial support were up to 2.17 times more likely to meet mental healthcare needs compared to those without financial support (OR = 0.46; 95% CI: 0.28, 0.81). Additionally, an increase in the self-rated mental health score was associated with a decrease in the likelihood of perceived need. A linear trend was observed between SES and the odds of perceived need; in other words, as SES increased, the odds of perceived need decreased. For instance, patients in the wealthiest category (Quintile 5) had approximately 80% lower odds of perceived need compared to patients in the poorest category (Quintile 1) (OR = 0.19; 95% CI: 0.08, 0.47).

Figure 1 depicts the concentration curve for the perceived need for mental healthcare. The perceived need for mental healthcare was more concentrated among disadvantaged groups, with a concentration index (95% CI) of -0.24 (-0.18, -0.30). In Figure 2, the contribution of each determinant included in the multiple analysis is presented after decomposition analysis. The top five contributors to socioeconomic inequality in perceived need for mental

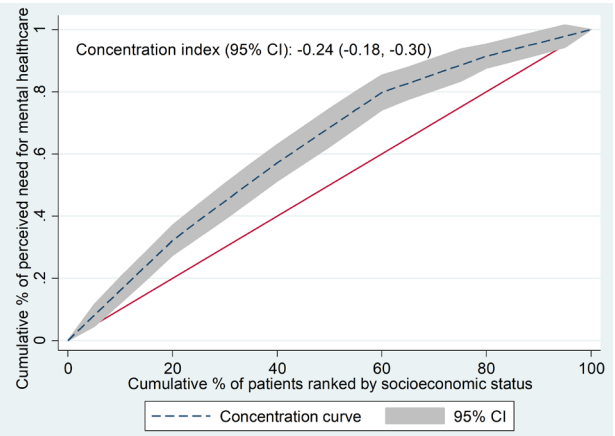

Figure 1. Concentration Curve of Perceived Need for Mental Healthcare

Table 1. Cross-tabulation of Patients' Characteristics and Perceived Need for Mental Healthcare

Patients' Characteristics	Perceived Need for Mental Healthcare		OR (95% CI)	*P* value
	No (n=224)	Yes (n=169)		
Gender				
Male	101 (45.09)	48 (28.40)	Reference	
Female	123 (54.91)	121 (71.60)	2.06 (1.35, 3.16)	0.001
Age (year)				
≤60	152 (67.86)	107 (63.31)	Reference	
>60	72 (32.14)	62 (36.69)	1.22 (0.80, 1.86)	0.35
Marital status				
Married	195 (87.84)	125 (75.76)	Reference	
Widow	20 (9.01)	32 (19.39)	1.78 (0.63, 5.03)	0.27
Single/divorced	7 (3.15)	8 (4.85)	2.49 (1.36, 4.55)	0.003
Education level				
Illiterate	25 (11.16)	46 (27.22)	Reference	
Primary	64 (28.57)	51 (30.18)	0.43 (0.23, 0.79)	0.007
Secondary-high school	27 (12.05)	29 (17.16)	0.58 (0.28, 1.19)	0.14
Diploma	46 (20.54)	24 (14.20)	0.28 (0.14, 0.56)	<0.001
Academic	62 (27.68)	19 (11.24)	0.16 (0.08, 0.34)	<0.001
Occupation				
Retired	45 (20.27)	30 (17.96)	Reference	
Unemployed/staying at home	98 (44.14)	108 (64.67)	1.65 (0.96, 2.82)	0.06
Employed	79 (35.59)	29 (17.37)	0.55 (0.29, 1.03)	0.06
Location				
Urban	203 (92.27)	137 (82.53)	Reference	
Rural	17 (7.73)	29 (7.47)	2.52 (1.33, 4.77)	0.004
Size of household				
1 member (living alone)	8 (3.62)	23 (13.69)	Reference	
2 members	61 (27.60)	40 (23.81)	0.22 (0.09, 0.56)	0.001
3–4 members	119 (53.85)	82 (48.81)	0.24 (0.10, 0.56)	0.001
5 members or more	33 (14.93)	23 (13.69)	0.24 (0.09, 0.63)	0.004
Income (dollars)				
<100	31 (13.96)	29 (17.37)	Reference	
100-200	98 (44.14)	103 (61.68)	1.12 (0.63, 2.00)	0.69
200-300	66 (29.73)	26 (15.57)	0.42 (0.21, 0.83)	0.01
>300	27 (12.16)	9 (5.39)	0.35 (0.14, 0.88)	0.02
Asset-based wealth index				
Very poor	32 (14.29)	51 (30.72)	Reference	
Poor	44 (19.64)	47 (28.31)	0.67 (0.36, 1.22)	0.19
Middle	32 (14.29)	28 (16.87)	0.54 (0.28, 1.07)	0.08
Rich	54 (24.11)	24 (14.46)	0.27 (0.14, 0.53)	<0.001
Very rich	62 (27.68)	16 (9.64)	0.16 (0.08, 0.32)	<0.001
Challenge in household expenses in the last 6 months				
No	131 (59.28)	53 (32.12)	Reference	
Yes	90 (40.72)	112 (67.88)	3.07 (2.01, 4.69)	<0.001
Type of insurance				
No coverage/poor insurance	16 (7.21)	24 (14.20)	Reference	
Social security	109 (49.10)	76 (44.97)	0.46 (0.23, 0.93)	0.03
Treatment services	46 (20.72)	18 (10.65)	0.26 (0.11, 0.60)	0.002
Other	51 (22.97)	51 (30.18)	0.67 (0.32, 1.40)	0.28

Table 1. Continued

Patients' Characteristics	Perceived Need for Mental Healthcare		OR (95% CI)	*P* value
	No (n=224)	Yes (n=169)		
Supplemental insurance				
No	89 (39.91)	74 (45.12)	Reference	
Yes	134 (60.09)	90 (54.88)	0.81 (0.54, 1.21)	0.30
Mental health score (self-reported)				
<25	9 (4.02)	24 (14.72)	Reference	
25-50	46 (20.54)	50 (30.67)	0.41 (0.17, 0.96)	0.04
50-75	52 (23.21)	46 (28.22)	0.33 (0.14, 0.78)	0.01
>75	117 (52.23)	43 (26.38)	0.14 (0.06, 0.32)	<0.001
Duration of diabetes				
<5	84 (38.36)	61 (39.10)	Reference	
5-10	63 (28.77)	40 (25.64)	0.87 (0.52, 1.46)	0.61
>10	72 (32.88)	55 (35.26)	1.05 (0.65, 1.70)	0.84
Complications of diabetes				
No	142 (63.39)	100 (59.17)	Reference	
1	61 (27.23)	50 (29.59)	1.16 (0.74, 1.83)	0.66
2 and higher	21 (9.38)	19 (11.24)	1.28 (0.65, 2.51)	0.46
Health care visits/transportation				
No	94 (42.15)	73 (43.20)	Reference	
Yes	129 (57.85)	96 (56.80)	0.96 (0.64, 1.43)	0.83
Remembering medication				
No	123 (54.91)	97 (57.40)	Reference	
Yes	101 (45.09)	72 (42.60)	0.90 (0.60, 1.35)	0.62
Purchasing and preparing food				
No	121 (54.02)	99 (58.58)	Reference	
Yes	103 (45.98)	70 (41.42)	0.83 (0.55, 1.24)	0.37
Remembering to do exercise				
No	109 (48.66)	86 (50.89)	Reference	
Yes	115 (51.34)	83 (49.11)	0.91 (0.61, 1.36)	0.66
Emotional support				
No	43 (19.20)	58 (34.32)	Reference	
Yes	181 (80.80)	111 (65.68)	0.45 (0.29, 0.72)	0.001
Financial support				
No	104 (46.43)	113 (66.86)	Reference	
Yes	120 (53.57)	56 (33.14)	0.43 (0.28, 0.65)	<0.001
Remembering blood sugar checking				
No	82 (36.61)	68 (40.24)	Reference	
Yes	142 (63.39)	101 (59.76)	0.86 (0.57, 1.29)	0.46
Socioeconomic status				
Quintile 1	25 (11.26)	54 (32.93)	Reference	
Quintile 2	36 (16.22)	40 (24.39)	0.51 (0.27, 0.99)	0.05
Quintile 3	40 (18.02)	37 (22.56)	0.43 (0.22, 0.82)	0.01
Quintile 4	58 (26.13)	19 (11.59)	0.15 (0.07, 0.31)	<0.001
Quintile 5	63 (28.38)	14 (8.54)	0.10 (0.05, 0.22)	<0.001

health care were the poorest category of economic status (27%), illiteracy (18.41%), the poor category of economic status (9.27%), challenges in household expenses (9.20%), and gender (6.44%), respectively.

Figure 3 presents the main reasons for delay/avoidance of mental healthcare according to SES quintiles. Cost (could not afford costs) with 42.60%, minimization (e.g., did not feel the need for treatment at the time) with

Table 2. Multiple Analysis of Socioeconomic Status and other Potential Determinants of Perceived Need for Mental Healthcare

Patients' Characteristics	OR (95% CI)	*P* Value
Gender		
Male	Reference	
Female	2.44 (1.36, 4.40)	0.003
Marital status		
Married	Reference	
Widow	1.04 (0.21, 5.11)	0.96
Single/divorced	1.20 (0.51, 2.86)	0.67
Location		
Urban	Reference	
Rural	1.89 (0.86, 4.18)	0.11
Size of household		
1 member (living alone)	Reference	
2 members	0.58 (0.16, 2.08)	0.41
3–4 members	0.58 (0.16, 2.08)	0.40
5 members or more	0.43 (0.11, 1.69)	0.23
Challenge in household expenses in the last 6 months		
No	Reference	
Yes	1.97 (1.16, 3.35)	0.01
Type of insurance		
No coverage/poor insurance coverage	Reference	
Social security	0.32 (0.13, 0.79)	0.01
Treatment services	0.19 (0.06, 0.54)	0.002
Other	0.41 (0.16, 1.07)	0.07
Mental health score (self-reported)		
<25	Reference	
25-50	0.41 (0.15, 1.39)	0.09
50-75	0.58 (0.21, 1.62)	0.31
>75	0.28 (0.10, 0.75)	0.01
Emotional support		
No	Reference	
Yes	0.59 (0.31, 1.10)	0.10
Financial support		
No	Reference	
Yes	0.46 (0.26, 0.81)	0.007
Socioeconomic status		
Quintile 1	Reference	
Quintile 2	0.59 (0.27, 1.27)	0.18
Quintile 3	0.51 (0.24, 1.10)	0.09
Quintile 4	0.25 (0.11, 0.58)	0.001
Quintile 5	0.19 (0.08, 0.47)	<0.001

39.05%, and stigma (might cause neighbours/community to have a negative opinion) with 30.17% were the main reasons, respectively.

Discussion

The current study assessed socioeconomic inequality in perceived need among T2DM in Hamadan, Western Iran. The findings indicated that the perceived need for mental health care was high, and there was socioeconomic inequality in the perceived need. The contribution of low economic status to inequality was more pronounced than other determinants. Illiteracy, challenges in household expenses, and gender were identified as other essential determinants of socioeconomic inequality. Cost, minimization, and stigma were the most frequently reported reasons for delay/avoidance of mental healthcare among patients with perceived need, respectively.

We observed socioeconomic inequality in our study, where patients from advantaged SES groups were less likely to have a perceived need for mental healthcare compared to the poorest ones. This situation may suggest the presence of the "inverse care law", indicating limited access to and utilization of healthcare services where the greatest need exists.[26] Moreover, patients with low SES often received better treatment for their disease and related complications. Unmet needs in the treatment and management of diabetes may increase the risk of mental health status or psychological distress.[27] One possible explanation that should be considered is that other factors could modify the effect of SES on reasons for delay/avoidance. SES is a macro determinant of health; in other words, SES may impact factors such as expectations, perceptions, beliefs, and attitudes, which can subsequently lead to delay/avoidance of healthcare services.[28]

Our finding showed that the two lowest quintiles of economic status and illiteracy had the highest contribution to socioeconomic inequality of perceived need for mental healthcare. Previous studies have highlighted that the risk of unmet need for mental healthcare among people with low income and with chronic conditions is high.[29-31] It has been expected that unmet needs without appropriate response can lead to mental health problems over time. Therefore, the mental health care needs of poorer and less educated T2DM patients should be met by the health system, family, and community before the development of mental health problems.

The healthcare system should pay particular attention to female patients and those without health insurance coverage in disadvantaged groups. Women living with diabetes are at risk for developing psychiatric disorders.[6] Unemployment is positively related to the risk of mental health problems in diabetic patients.[32,33] Health insurance coverage depends on the ability to afford insurance costs and employment status[19]; however, in the current study, a substantial percentage of patients were unemployed and stayed at home. Unemployment can lead to financial difficulties and challenges in household expenses, which in turn contribute to the increase of psychiatric symptoms and perceived need for mental healthcare.

In addition to the unmet need for mental healthcare, the significant influence of low economic status and illiteracy on mental health problems has been highlighted in several studies conducted in Iran. For example, one study demonstrated that low economic status made the largest

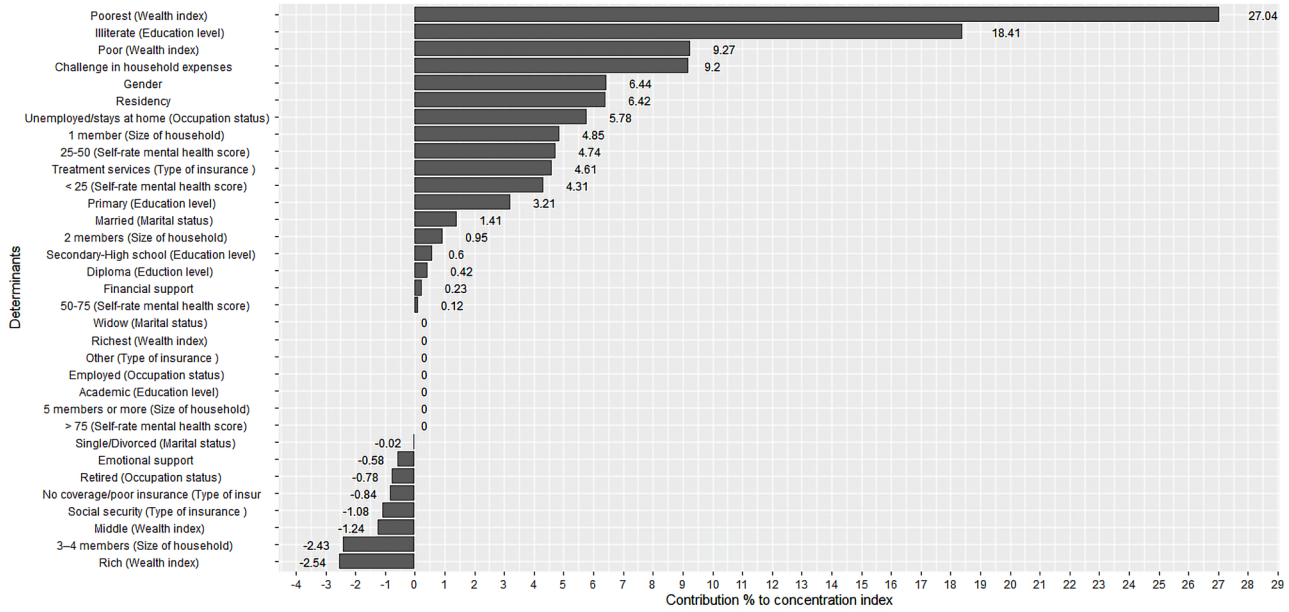

Figure 2. Contributions of Determinants to Socioeconomic Inequality in Perceived Need for Mental Healthcare

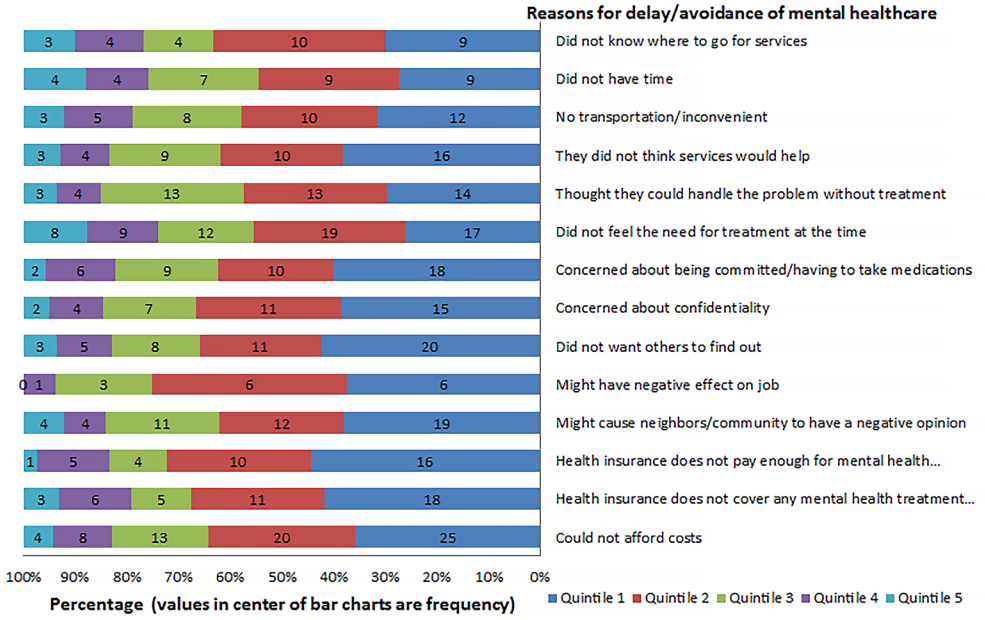

Figure 3. Reasons for delay/avoidance of Receiving Mental Healthcare according to Quintiles of Socioeconomic Status

contribution to socioeconomic inequality in mental health (40%),[34] and another study indicated that illiteracy made the largest contribution to socioeconomic inequality in mental health (69%).[35] It is important to note that the two studies above were conducted in the general population. In T2DM patients, these figures could potentially be higher.

This study also revealed that cost (e.g., financial barriers), minimization, and stigma (e.g., individual or cultural conditions) were the main reasons for the delay/avoidance of mental healthcare. In one study conducted in Iran, it was demonstrated that lack of accessibility and lack of availability of healthcare services were the main reasons for the unmet need for outpatient healthcare services (approximately 78%). Acceptability was another reason (approximately 13%) in the general population.[36] Accessibility refers to financial barriers, and acceptability refers to individual or cultural conditions.[36] Delay/avoidance of healthcare services can be a determinant of demographic and SES components. For example, females were more likely to report cost-related reasons and stigma for the avoidance of healthcare services; on the other hand, minimization was the main reason among insured people.[37] Another study indicated that well-educated people cited more structural barriers.[29]

To the best of our knowledge, this work is the first study to assess the perceived need for mental healthcare in patients with T2DM and to explore the socioeconomic inequality in such outcomes in T2DM patients. Several limitations should be considered:

1. The questions of perceived need were asked over the

last year; therefore, there may have been a difference in the ability of patients to recall previous events or experiences accurately.
2. The information was collected using face-to-face interviews, and the chance of self-reporting and interviewers' biases should be considered.
3. The patients were recruited from a governmental diabetes center, and the results are generalizable to a reference population of T2DM patients. However, the external validity of the study can be improved by including patients from private centers.

Conclusion

In summary, our results showed socioeconomic inequality in perceived need among T2DM patients. Economic, education, challenges in household expenses, and gender are the most important contributors to socioeconomic inequality, respectively. Financial barriers, minimization, and stigma are the most important reasons for delay/avoidance of healthcare services among patients with perceived need. Our results can be useful for targeting mental health problems in truly needy T2DM patients from a health policy perspective.

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Authors' Contribution

Conceptualization: Shiva Borzouei, Erfan Ayubi.
Data curation: Shiva Borzouei, Mohammadmahdi Kanooni Sabet, Maryam Parastesh, Sedigheh Mafakheri.
Formal Analysis: Erfan Ayubi, Salman Khazaei.
Funding acquisition: Erfan Ayubi.
Investigation: Shiva Borzouei, Mohammadmahdi Kanooni Sabet, Maryam Parastesh, Erfan Ayubi.
Methodology: Erfan Ayubi, Salman Khazaei.
Project administration: Shiva Borzouei, Erfan Ayubi.
Resources: Shiva Borzouei, Erfan Ayubi.
Software: Erfan Ayubi.
Supervision: Shiva Borzouei, Erfan Ayubi.
Validation: Shiva Borzouei, Erfan Ayubi.
Visualization: Erfan Ayubi, Salman Khazaei, Sedigheh Mafakheri.
Writing-original draft: Shiva Borzouei, Erfan Ayubi.
Writing-reviewing & editing: Shiva Borzouei, Salman Khazaei, Erfan Ayubi.

Competing Interests

The authors declare that there is no conflict of interests.

Ethical Approval

Ethical considerations in this study included obtaining permission from the Ethics Committee of Hamadan University of Medical Sciences (Ethical Code: IR.UMSHA.REC.1401.699) and obtaining written consent from the participants.

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