

Title: Differences in Psychological Factors Affecting Depression in Patients with Type 1 and Type 2 Diabetes.

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Introduction: Patients with diabetes have higher incidences of major depression than the general population (Roy et al., 2012), possibly because diabetes mellitus is an onerous disease requiring patients to conduct a variety of self-care tasks for glycemic management (Fisher et al., 2015; Gao et al., 2022). However, patients with Type 1 (T1D) and Type 2 diabetes (T2D) might experience different types of difficulties and burdens that cause depressive symptoms during diabetes management and care (Balfe et al., 2012). This study investigated differences in psychological factors influencing depression in T1D and T2D, including diabetes-related medical background, illness perception in diabetes, reward observation, and value-aligned behaviors associated with depressive symptoms.

Method: Patients with diabetes (N = 335, T1D: 39, T2D: 296) provided demographic and clinical information and completed the Patient Health Questionnaire-9 (PHQ-9; Muramatsu et al., 2018), the Environmental Reward Observation Scale (EROS; Kunisato et al., 2011), the Valuing Questionnaire (VQ; Doi et al., 2017), and the Brief Illness Perception Scale (BIPQ; Broadbent et al., 2006). The Waseda University Ethics Review Committee on Human Studies approved this study (Accreditation Number: 2021-351).

Results: The correlation coefficients between depression and other variables were calculated separately for T1D and T2D patients. T1D had a significant negative correlation of depression with age and the BIPQ's "sense of control" and "reward observation" ($-.50 < r < -.46$, $p < .01$) and a significant positive correlation with the VQ's "obstruction" ($r = .48$, $p < .01$). In contrast, T2D had a significant negative correlation of depression with age, the BIPQ's "sense of control," and "reward observation," and the VQ's "progress" ($-.60 < r < -.23$, $p < .01$), and significant positive correlation with the BIPQ's "impact on daily life," and the VQ's "obstruction" ($.45 < r < .55$, $p < .01$). Then, we conducted multiple regression analyses with depression as the dependent variable and the variables showing significant correlations with depression as independent variables. The results of T1D indicated a significant coefficient of determination ($R^2 = .59$, $p < .001$), a significant effect of age, and the BIPQ's "Sense of control." furthermore, the results of T2D also indicated a significant coefficient of determination ($R^2 = .53$, $p < .001$), the effect of age, the BIPQ's "Impact on daily life," the VQ's "progress," "reward observation" and "obstruction."

Discussion: The BIPQ's "sense of control," which shows the sense of disease management, affected

depression in T1D. Managing blood glucose levels is essential for T1D patients' lives, which affects their depression more significantly than other psychological variables. On the other hand, depression in T2D was affected by diabetes' "Impact on daily life" more than "the sense of control," partly because many T2D patients in this study had relatively mild diseases, including only undergoing dietary therapy. This study showed that psychological variables affecting depression differed between T1D and T2D. It is essential to consider supporting diabetes patients' depression by focusing on differences in their disease type and treatment style. (2856 characters)

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Introduction

- Patients with diabetes have higher incidences of major depression than the general population (Roy et al., 2012)
- Diabetes mellitus is an onerous disease requiring patients to conduct a variety of self-care tasks for glycemic management (Fisher et al., 2015; Gao et al., 2022).
- However, patients with Type 1 (T1D) and Type 2 diabetes (T2D) might experience different types of difficulties and burdens that cause depressive symptoms during diabetes management and care (Balfe et al., 2012).

Aim of this study:

To investigate differences in psychological factors influencing depression in T1D and T2D.

Method

Participants

Patients with diabetes (N = 335, T1D: 39, T2D: 296)

Materials

1. demographic and clinical information
2. the Patient Health Questionnaire-9 (PHQ-9; Muramatsu et al., 2018),
3. the Environmental Reward Observation Scale (EROS; Kunisato et al., 2011),
4. the Valuing Questionnaire (VQ; Doi et al., 2017),
5. the Brief Illness Perception Scale (BIPQ; Broadbent et al., 2006).

The Waseda University Ethics Review Committee on Human Studies approved this study (Accreditation Number: 2021-351).

Results

Factors of Depression in T1D

	Depression
Age	-.45 ***
BIPQ "Sense of Control"	-.38 **
Reward Observation	-.23
VQ "obstruction"	.26
R^2	.59 ***

** $p < .01$, *** $p < .001$

Factors of Depression in T2D

	Depression
Age	-.16 ***
BIPQ "Impact on daily life"	.25 ***
BIPQ "Sense of Control"	-.01
Reward Observation	-.23 ***
VQ "progress"	-.10 *
VQ "obstruction"	.34 ***
R^2	.53 ***

* $p < .05$, ** $p < .01$, *** $p < .001$

Association of each variable with depression in People with T1D and T2D

T1D: Significant negative correlation of depression with **age** and the BIPQ's "**sense of control**" and "**reward observation**" ($-.50 < r < -.46$, $p < .01$) and a significant positive correlation with the VQ's "**obstruction**" ($r = .48$, $p < .01$).

T2D: Significant negative correlation of depression with **age**, the BIPQ's "**sense of control**," and "**reward observation**," and the VQ's "**progress**" ($-.60 < r < -.23$, $p < .01$), and significant positive correlation with the BIPQ's "**impact on daily life**," and the VQ's "**obstruction**" ($.45 < r < .55$, $p < .01$).

Effect of each variable on depression in People with T1D and T2D

T1D: Significant coefficient of determination ($R^2 = .59$, $p < .001$), a significant effect of **age**, and the BIPQ's "**Sense of control**."

T2D: Significant coefficient of determination ($R^2 = .53$, $p < .001$), the effect of **age**, the BIPQ's "**Impact on daily life**," the VQ's "**progress**," "**reward observation**" and "**obstruction**."

Discussion & Conclusion

The BIPQ's "sense of control," which shows the sense of disease management, affected depression in T1D. Managing blood glucose levels is essential for T1D patients' lives, which affects their depression more significantly than other psychological variables. On the other hand, depression in T2D was affected by diabetes' "Impact on daily life" more than "the sense of control," partly because many T2D patients in this study had relatively mild diseases, including only undergoing dietary therapy.

This study showed that psychological variables affecting depression differed between T1D and T2D. It is essential to consider supporting diabetes patients' depression by focusing on differences in their disease type and treatment style.

発表概要報告書

【大会概要】

2023年6月1日から6月4日にかけて韓国ソウルにて開催された、10th World Congress of Cognitive and Behavioral Therapiesに参加した。本学会は3年に1度の頻度で開催される、認知行動療法に関する国際学会である。本学会のテーマは、“Global CBT Dissemination, Accessibility and New Technology”であった。

【発表の概要】

“Differences in Psychological Factors Affecting Depression in Patients with Type 1 and Type 2 Diabetes”という題目でポスター発表を行った。糖尿病は一般人口と比較してうつ症状を抱えやすいことが分かっている。その背景として、糖尿病患者は血糖マネジメントのために様々な療養行動が必要であったり、社会的なスティグマの対象になりやすいといった原因が考えられる。一方で、1型糖尿病患者と2型糖尿病患者では、必要な療養行動や、抱える心理的苦痛が異なることが想定される。そこで、本研究では1型糖尿病患者と2型糖尿病患者において、うつ症状に影響を及ぼす要因の違いについて検討することを目的とした。本研究により、うつ症状に影響する心理的変数は1型糖尿病と2型糖尿病で異なることが示された。病型や治療スタイルの違いに着目し、糖尿病患者のうつ病支援を検討することが重要である。

【学会体験記】

ポスター発表では、ポスターの掲示と共に補足用配布資料を作成し、直接またはメールでの質問対応ができるように留意した。身体疾患関連や摂食障害（1型糖尿病患者において摂食障害の併発が多いため）、プライマリーケアなどが専門分野である世界中の研究者に立ち寄っていただき、意見交換をすることができた。自身が出席したシンポジウムでの発表者が、その後私のポスター発表に立ち寄って下さりコメントをくださるなど、対面学会ならではの積極的なコミュニケーションをとることができたと感じている。

また、本学会では、“New Developments in Avoidance Research in Anxiety Disorders and Chronic Physical Illness”や、“Fear of Disease Progression: A Transdiagnostic Construct”といった、身体疾患患者の心理的適応に関するシンポジウムが実施されていた。自身の興味領域と大変近い内容であり、海外の若手研究者と意見交換をできる大変貴重な機会であった。

今後も、自身の研究の発展および発表スキルの向上に精進してまいります。最後になりますが、貴重な発表の機会をくださった関係者の皆さまに心より感謝申し上げます。

(日本語 1200字以内)

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