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Predicting the General Self-Efficacy of the People with Diabetes in Bandargaz- 2023: The Role of Rumination and Alexithymia

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Abstract

Objective: This study aimed to investigate the impact of rumination and alexithymia on the general self-efficacy of individuals with diabetes.
Materials and Methods: This correlational study targeted diabetic individuals aged 30–50 years residing in Bandargaz in 2023. A total of 217 participants were selected through convenience sampling. Data collection instruments included the General Self-Efficacy Scale (GSES), the Ruminative Response Scale (RRS), and the Toronto Alexithymia Scale (TAS). Data were analyzed using SPSS version 24, employing Pearson's correlation coefficient and stepwise regression analysis.
Results: The results revealed a significant negative relationship between alexithymia and general self-efficacy. In the first step of the regression analysis, the beta coefficient was -0.446, indicating that a one standard deviation increase in alexithymia was associated with a 0.446 standard deviation decrease in general self-efficacy. In the second step, the beta coefficient for rumination was -0.152, suggesting that a one standard deviation increase in rumination was associated with a 0.152 standard deviation decrease in general self-efficacy.
Conclusion: The findings demonstrate that higher levels of alexithymia and rumination negatively affect general self-efficacy in individuals with diabetes. Educational interventions and workshops focused on improving emotional regulation and cognitive coping strategies could enhance self-efficacy, enabling individuals to achieve personal goals and improve their overall well-being.
Keywords: General self-efficacy, Diabetes, Rumination, Alexithymia

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Introduction

Diabetes is a major public health issue (1). It has financial costs and impacts individuals' quality of life (2). The World Diabetes Federation reported that the number of people with diabetes is expected to increase from 366 million in 2011 to 592 million by 2035 (3). People with diabetes often deal with stress and low self-confidence, but having higher self-confidence can improve self-care (4). Building self-confidence can improve self-care for better quality of life for people with diabetes (5). Improving confidence in self-care activities is important for diabetic patients (6). Following dietary guidelines, staying active, and managing their condition can help control blood sugar levels (7). The research showed, the patients with more self-confidence in their abilities are better at self-care. The self-confidence helps patients face challenges and overcome mental obstacles (8). Higher self-confidence is linked to better emotional health, lower stress, and improved overall health outcomes (9). Building self-confidence is also associated with healthier lifestyle choices and improved physical and mental health for diabetic patients (10).

People with diabetes encounter physical challenges due to the disease, including accepting their condition, dealing with blood sugar changes, taking insulin, following dietary and activity limits, and focusing on self-care. These challenges can cause mental problems like rumination, affecting their productivity (2). Rumination, which involves intrusive thoughts, can interfere with focusing on main tasks and goals (11). It is strongly connected to negative emotions like sadness and distress. Engaging in rumination for too long can harm mental health by causing repetitive negative thoughts (12). People who ruminate a lot tend to avoid problem-solving and blame themselves (13). Ruminating on negative experiences hinders problem-solving and leads to prolonged negative emotions compared to those who do not stay on negativity (14).

Rumination is connected with unpleasant emotions like sorrow and anguish. According to the studies, prolonged mental activity can lead to rumination (12). Repetitive thinking can have negative effects on a person's mental health. People who ruminate often blame themselves instead of problem-solving (13). Additionally, they struggle to find beneficial solutions for their problems and are more likely to focus on the negative aspects of events, keeping them in a negative emotional state longer than who do not ruminate (14). Soo and Sherman (2015) explain that rumination involves repetitive negative thoughts which can lead to feelings of hopelessness and affect mood and motivation. This type of thinking is connected to psychological distress and increased negative emotions such as anger and stress (15). Rumination involves a constant cycle of self-centered thoughts in response to initial negativity, which hinders the progress of cognitive behavioral therapy for depression and undermines self-efficacy in patients (2).

Alexithymia is a condition where people have difficulty expressing their emotions, affecting the self-confidence of diabetic patients. People with alexithymia have trouble recognizing and describing their feelings. Research is being done to understand the causes of alexithymia, it may be temporary rather than a permanent trait associated with feelings of inadequacy (16). People with alexithymia often magnify strange bodily feelings, confusing emotional reactions as physical symptoms, which can lead to feeling emotionally helpless and expressing it through physical complaints (17). Research has indicated a correlation between alexithymia and experiences of pain, with individuals exhibiting higher levels of depression and anxiety compared to those without alexithymia (18). People who have alexithymia may struggle to identify and understand emotional

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cues, which can result in increased stress, anxiety, and psychological distress compared to others (18). Alexithymia is linked to depression and anxiety, which are elements of mental illness (19). People with alexithymia may exaggerate physical sensations, misinterpret emotional cues, and show emotional distress by expressing physical discomfort in therapy. Difficulties processing emotions may contribute to psychological symptoms and lower self-confidence (20).

Few studies have explored the connection between rumination, alexithymia, and general self-efficacy in the population of patients with diabetes in Iran and other countries. There is a lack of information on the impact of these variables on general self-efficacy, particularly in diabetic patients. Further research is needed to better understand the complexity and depth of these concepts. Hence, it can be stated that this current study offers practical strategies to enhance the general self-efficacy of diabetic patients for consultants, health care centers, and relevant officials and planners. The results of this study can help in management of rumination and alexithymia on diabetic patients' overall well-being. The primary objective is to explore how rumination and alexithymia can predict the general self-efficacy of individuals with diabetes.

Material and methods

The current study is viewed as a fundamental objective investigation, using correlational descriptive research methods. The participants in this study consisted of 500 diabetic individuals aged between 30 and 50 who were receiving treatment at Bandargaz Health Center in 2023. A sample size of 217 patients were selected using convenience sampling from the larger population, following Karajesi and Morgan's table. The selected participants were informed about the research objectives and allowed to participate or decline. Eligibility for participation was determined based on specific criteria. Before administering the questionnaire and interacting with participants, necessary permissions were obtained to contact and meet them, ensuring their informed consent. The researcher efficiently managed survey materials and tools, distributing questionnaires at Bandargaz Health Center within three to four weeks. Participants were informed about the research goals and how to answer the questions following ethical research guidelines, with opportunities for clarification. The researcher analyzed the data in two stages after collecting it. Descriptive statistics, such as frequency tables, mean, and standard deviation, were employed to present an overview of the study group. Inferential statistics, such as Pearson's correlation coefficient and stepwise regression, using SPSS24 software after confirming data normality with the Kolmogorov-Smirnov test. Skewness and kurtosis tests were implemented to assess data distribution, with values -2 to 2, indicating no significant deviations. Findings from the Kolmogorov-Smirnov test suggested a normal distribution of all variables at a significance level exceeding 0.05, permitting parametric tests such as Pearson's correlation and stepwise regression to determine relationships between variables.

Tools

The General Self-Efficacy Scale (GSES):

In the present study, GSES was used to measure perceived self-efficacy in women with breast cancer. The GSES was designed by Sherer and colleagues (21). It consists of 17 items. Sherer and colleagues (21), believe that this scale measures three aspects of behavior, i.e., desire to initiate behavior, diligence to complete the behavior, and attempts to overcome obstacles. This instrument is scored on a five-point Likert scale. The score ranges from 17 to 85. High scores indicate high levels of self-efficacy. Farnia and colleagues (22) reported an alpha Cronbach coefficient of 0.94 for the scale. In this study, ten experts were asked to assess the validity of the Persian version of the GSES (Content Validity Ratio (CVR)= 0.89, Content Validity Index (CVI)= 0.92). The reliability of the GSES was also

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assessed and its Cronbach's alpha coefficient was 0.88.

Ruminative Response Scale (RRS):

The RRS was used to measure rumination in response to negative affect (23). The RRS consists of 22 items that are rated on scale of one (I almost never respond in this way) to four (I almost always respond in this way). Participants were instructed to think about how they typically reacted to personal loss, and to indicate how often they engaged in particular behaviors such as ''wishing it would not have happened that way or think about what happened''. Total RRS has achieved a test–retest correlation of 0.67 over a 2-year period and good convergent and predictive validity (23). The Persian RRS had high internal consistency (Cronbach's alpha= 0.90). The test–retest reliability of RRS (r= 0.82) during 3 weeks in 54 Persian students were reported by Bagherinezhad et al. (24). The Cronbach's alpha reliability coefficient for this scale was reported in the study as 0.88.

The Toronto Alexithymia Scale (TAS):

Bagby, Parker, and Taylor revised this scale (25). It assesses alexithymia through three subscales: difficulty in identifying feelings (DIF), difficulty in describing feelings (DDF), and external-oriented thinking (EOT). The scale has demonstrated appropriate internal consistency and retest reliability. Studies have shown strong internal stability (Cronbach's alpha: 81%) and high reliability through retests over a three-week period (r= 77%). Shagholnia, Moradi, and Kafi (26) found Cronbach's alpha coefficients of 74% for DIF, 61% for DDF, and 50% for EOT in the Iranian version of the scale.

Ethical considerations

The project was found to be in accordance to the ethical principles and the national norms and standards for conducting Medical Research in Iran. IR.IAU.SARI.REC.1403. 116.

Results

The demographic and descriptive statistics of patients is shown in Table 1.

Table 1 shows the mean and standard deviation of the general self-efficacy in patients is 39.30 (± 4.03). The alexithymia variable is 40.56 (± 1.34), and the rumination variable is 38.57 (± 1.41). The skewness and kurtosis values fall within the range of (2 to -2), indicating that the variables are not significantly skewed or peaked. The Kolmogorov-Smirnov test results suggest that the distribution of all variables is normal, with a significance level above 0.05.

Moreover, the results showed that the relationships between alexithymia (F= 53.41; $P< 0.001$) and rumination (F= 29.25; $P< 0.001$) in predicting the general self-efficacy are statistically significant ($P< 0.01$).

Significantly difference in patients with hypothyroidism, hyperthyroidism, and T2DM without TD. In other words, individuals with T2DM without TD had a lower HbA1c than those with T2DM and TD.

The correlation between predictions of general self-efficacy (dependent variable) based on alexithymia and rumination (independent variables) is 0.446.

Table 1. Descriptive statistics of the variables

Variables	Group	Frequency (%)	Mean (±SD)
Gender	Woman	158 (73%)	
	Man	59 (27%)	
Age	30 to 40 years	93 (43%)	
	41 to 50 years old	124 (57%)	
Education	Diploma	146 (67%)	
	Post-graduate	54 (25%)	
	Bachelor's degree	17 (8%)	
General self-efficacy			39.30 (± 4.03)
Alexithymia			40.56 (± 1.34)
Rumination			38.57 (±1.41)

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The adjusted correlation coefficient value is 0.195, suggesting that alexithymia only explains 19.5% of the variance in general self-efficacy.

In the second step, the overall correlation between the research variables remains at 0.463. The adjusted correlation coefficient value is 0.207, indicating that rumination and alexithymia explain 20.7% of the variance in general self-efficacy. The beta value in the second step is -0.152, revealing that for every one standard deviation increase in rumination, general self-efficacy decreases by 0.152 standard deviations.

Discussion

The results suggested that there is a significant correlation between the research variables. Additionally, the study found that an increase in alexithymia is associated with a decrease in general self-efficacy. As a result, alexithymia is the strongest predictor of general self-efficacy in patients with diabetes. Hence, alexithymia plays a key role in predicting the overall self-efficacy of individuals with diabetes. This result aligns with the research conducted by Villaécija et al. (6), Soo and Sherman (15) Zheng et al. (28), Renna et al. (27).

It should be noted that diabetes is a prevalent, long-term illness that can lead to various psychological, social, and physical issues. The diagnosis of diabetes, along with the need for a new lifestyle and dietary restrictions, can result in psychological challenges such as decreased self-confidence for individuals with diabetes. The lack of self-confidence can be linked to various factors. As a result, individuals experiencing emotional dysregulation may misinterpret physical signs of emotional arousal, making them susceptible to mental health issues like depression and anxiety (29). A recent study found that alexithymia can enhance psychological factors like self-efficacy in middle-aged individuals (30). Individuals with alexithymia as exaggerating normal physical sensations, misinterpreting physical signs of emotional arousal, and displaying emotional helplessness through physical complaints (16). These individuals tend to focus on physical symptoms when seeking treatment. Issues in processing emotions cognitively may be the root cause of psychological symptoms and a subsequent decrease in self-efficacy (2).

Individuals lacking emotional intelligence struggle with identifying, expressing, managing, and controlling their emotions, as well as difficulty in differentiating between positive and negative emotions (14). Specialists have focused on emotions because of evolutionary, social, and relational reasons, and their impact on decision-making and health. Negative emotions affected patients with diabetes like stress, fear, and anger. These individuals struggle to control their emotions, leading to common experiences of stress, anger, frustration, disappointment, anxiety, and depression (4). As a result, diabetes patients with alexithymia may exhibit abnormal physical reactions because of their cognitive and emotional difficulties. They tend to exaggerate or misinterpret physical signs of emotional arousal and express emotional helplessness through physical complaints. This can make it challenging for patients with alexithymia to communicate and connect with others, as well as decrease their self-efficacy (20).

Because the current study is correlational, it is essential to be careful when interpreting the cause-and-effect relationship between variables. One drawback of this study is the reliance on self-reported questionnaires to assess variables, which may bias participants' responses. Additionally, the study lacks control over factors such as mental fatigue, anxiety, self-esteem, lifestyle, and economic status, which could impact the research findings and lead to inaccurate responses from participants.

Conclusion

The results indicated that a rise in alexithymia was linked to a decline in overall self-confidence. In the following phase, an increase

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in rumination resulted in a decrease in overall self-confidence. Based on the coefficients of the impacts, it can be concluded that the impact of rumination on general self-confidence was more substantial than that of alexithymia. Psychologists, therapists, and health psychologists should consider offering cognitive-behavioral therapy workshops, encouraging the review and re-creation of stressful situations from a more positive perspective, and promoting the visualization of desirable events to enhance the overall self-efficacy of diabetic patients. It is recommended that patients are encouraged to identify their values, establish goals, plan actions, anticipate obstacles, and ultimately commit to following through with them with the support of counselors, therapists, and clinical psychologists. Educational workshops may also help enhance the cognitive regulation of emotions to achieve goals and stay aligned with personal values despite challenges, ultimately leading to the fulfillment of objectives and increased patient self-efficacy.

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Conflict of Interest

All authors interpret that they have no conflict of interest.

Authors' contributions

FB: Investigation, Data collection, Data analysis, Writing-original draft and Methodology. EP: Conceptualization and Supervision, Writing-review and editing.

All the authors critically revised the manuscript, agree to be fully accountable for the integrity and accuracy of the study, and read and approved the final manuscript.

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