Psychological Interventions for Diabetes Patients During The COVID-19 Pandemic

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ABSTRACT

COVID-19 can trigger increased stress in diabetes people because they are vulnerable to experiencing psychological disorders. The stress experienced by people with diabetes can lead to hyperglycemia which is one of the causes of the poor prognosis of people with diabetes infected with COVID-19. This article aims to develop guidelines for psychological interventions in people with diabetes during the COVID-19 pandemic. We analyzed scientific articles on four databases, namely PubMed, ProQuest, EBSCO, and ScienceDirect. The quality of the articles was assessed using PRISMA based on predefined inclusion and exclusion criteria. The results of the literature review were 1041. Then, 61 articles were reviewed in full text. A total of 24 literatures that met the inclusion and exclusion criteria were analyzed in this article. There are three psychological intervention guidelines for people with diabetes during a pandemic, namely the psychological response of people with diabetes during the pandemic, psychological intervention for people with diabetes during the pandemic, and psychological intervention methods for people with diabetes during the pandemic. People with diabetes are a vulnerable group during the COVID-19 pandemic, so guidelines for psychological intervention in people with diabetes are essential to support and improve the mental health of people with diabetes during the pandemic.

Kata kunci:
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INTRODUCTION

COVID-19 (coronavirus) pandemic is caused by an infectious disease. This virus belongs to the same virus class as SARS and MERS, which also causes problems in the respiratory system, (Rothe & Byraredddy, 2020) later named SARS-CoV 2 (Yuki, Fujogi, & Koutsogianni, 2020). Transmission of the SARS-CoV 2 virus occurs through droplets and airborne (Wilson, Corbett, & Tovey, 2020) so that preventive measures such as minimizing social activities, using masks, and maintaining distance when carrying out activities outside the home are carried out as one way to prevent infection with this virus (Lotfi, Hamblin, & Rezaei, 2020). However, the fear of infection from this disease and the existence of restrictions on social interaction to control the spread of the pandemic impact people's mental health (Khan et al., 2020; Tang et al., 2021). A recent study investigating 1160 general population in Saudi Arabia showed that 28.3% had depressive symptoms, 24% experienced anxiety, and 22.3% experienced moderate to severe stress (Alkhamees, Alrashed, Alzunaydi, Almohimeed, & Aljohani, 2020). In a similar vein in Europe, research done on 1212 Sweden participants indicated that 30% experienced depression, and 24.2% experienced anxiety (McCacken, Badinlou, Buhrman, & Brocki, 2020). While in the Asian region, a meta-analysis study in diabetes (Apicella et al., 2020) with total number of 27,745 participants out of 12 studies showed that 25% experienced anxiety, and 28% experienced depression (Ren et al., 2020). These data indicate that the COVID-19 pandemic has caused mental health problems such as anxiety and depression.

Diabetes mellitus is included in one of the chronic diseases with the largest number of sufferers in the world, amounting to 463 million people (International Diabetes Federation). The COVID-19 pandemic has placed people with diabetes as a vulnerable group, both physically and psychologically. When viewed from a psychological side, people with diabetes, especially those with poor glycemic control, are at risk for a worse prognosis when infected with COVID-19 (Y. Li et al., 2020). This is probably because COVID-19 infection has a direct negative effect on β cell function (Apicella et al., 2020), β cells function to produce the hormone insulin responsible for controlling a person's blood sugar levels within normal limits. Thus, disturbances in β cell organs positively affect insulin levels, which would affect blood sugar levels' stability. Previous research showed that damage to β cells could lead to hyperglycemia (Sun, Song, Liu, & Geng, 2019) and acute metabolic complications, namely metabolic ketoacidosis (Apicella et al., 2020) in people with diabetes.

Meanwhile, when viewed from a psychological side, people with diabetes are included in the vulnerable group to have mental health problems during the pandemic. Patients with diabetes mellitus are estimated to have a risk of experiencing depression around two to three times higher than individuals without diabetes (Badescu et al., 2016). The results of a systematic review study show that the global estimate of people with diabetes who have depression is 28% (Khaledi, Haghjhatdoost, Feizi, & Aminorooyaa, 2019). This study also explains that Europe's estimated prevalence of depression is 24%, Africa 27%, Australia 29%, Asia 32%, and America 28%. These data suggest that psychological problems such as depression are common in people living with diabetes.

Stress in people with diabetes can affect blood sugar levels, both physiologically and psychologically, and behaviour (Hilliard et al., 2016). When viewed from a physiological and psychological perspective, stress can trigger the adrenal glands to release cortisol (Qin et al., 2016). Continuously high cortisol levels can reduce levels of insulin secretion (Kamba et al., 2016; Kuo, McQueen, Chen, & Wang, 2015). In comparison, insulin is needed by the body to control blood sugar levels. Apart from cortisol, stress can also trigger catecholamine release (Johnson, Barnard, Kulp, & Mehta, 2019). Catecholamines play a role in regulating glucose in the blood, (Ritter, Li, & Wang, 2019) where it plays a role in increasing glucose levels from both glycogenolysis and gluconeogenesis (Andreis & Singer, 2016). All these processes can undoubtedly lead to hyperglycemia in people with diabetes. Hyperglycemia can lead to various complications in people with diabetes, (Katsuda et al., 2015) such as retinopathy (Wang et al., 2018) and neuropathy (Czajka & Malik, 2016).

Besides having a physiological effect, stress experienced by diabetes mellitus sufferers can also negatively affect disease management. The stress experienced by people with diabetes is associated with decreased adherence to dietary patterns (Park, Quinn, Park, & Martyn-Nemeth, 2018), physical activity, regular blood sugar check (Jannoo, Wah, Lazim, & Hassali, 2017), and reduced level of adherence to medication (N. Kumar et al., 2017). Inadequate diabetes management can certainly harm glycemic control in people with diabetes. This shows that stress can lead to hyperglycemia in people with diabetes, either directly or indirectly.

Anchored by these facts, stress, diabetes, and COVID-19 have a relationship with one another. COVID-19 can trigger increased stress in diabetes people because people with diabetes are vulnerable to experiencing psychological disorders. The stress experienced by people with diabetes can lead to hyperglycemia. Hyperglycemia in people with diabetes is one of the causes of the poor prognosis of people with diabetes infected with COVID-19 (Fadini et al., 2020; Singh & Singh, 2020). Therefore, people with diabetes mellitus need psychological support services to improve their mental health, especially during the COVID-19 pandemic. Thus, this paper aims to provide practical guidance regarding psychological interventions for people with diabetes during the COVID-19 pandemic.

METHOD

We analyzed scientific articles on four databases, namely PubMed, ProQuest, EBSCO, and ScienceDirect. The quality of articles was assessed using PRISMA based on predefined inclusion and exclusion criteria. The PRISMA diagram of article selection can be seen in figure 1. The keywords used in the literature search process were “intervention,” “stress,” “diabetes,” and “COVID-19.” The inclusion criteria for seeking intervention guidelines and scientific articles are as follows: psychological intervention guidelines for people with diabetes during the COVID-19 pandemic. The intervention guide can be accessed electronically in English. The scientific articles used are correspondence articles, responding letters of editors, short communication, reports, reviews, and original research published in 2015 to 2020. We also included a study that addresses psychological interventions in diabetic patients during the COVID-19 pandemic in English. The number of articles obtained from four databases, namely PubMed, ProQuest, EBSCO, and ScienceDirect was 1041. The number of duplicate articles that were excluded was 37. Then the number of articles that
were excluded based on title and abstract was 943. The number of articles reviewed in full text was 61 and those that fit the inclusion and exclusion criteria were 24. The following PRISMA diagram details the article selection process:

**RESULTS AND DISCUSSION**

The results of the systematic review through four databases amounted to 24 articles (See table 1). There are three psychological intervention guidelines for people with diabetes during the pandemic. The first is the psychological response of people with diabetes during the pandemic, namely, stress, worry about COVID-19 infection, worry about diabetes management difficulties and anxiety, and depression. The second guideline is a psychological intervention for diabetes people during the pandemic, namely stress management, encouraging people with diabetes to maintain social relationships, consultation, cognitive therapy, mindfulness therapy, and education. The third recommendation is the psychological intervention method for people with diabetes during the pandemic using telepsychiatry.

**Table 1**

*Summary of Selected Studies (n=24)*

<table>
<thead>
<tr>
<th>No</th>
<th>Author and Year</th>
<th>Psychological Reaction</th>
</tr>
</thead>
</table>
et al. (2020); Khare J, Jindal S. (2020); Fisher L, Polonsky W, Asuni A, Jolly Y, Hessler D. (2020)


Worried about diabetes management difficulties


Anxiety and depression

<table>
<thead>
<tr>
<th>No</th>
<th>Author and Year</th>
<th>Type of Therapy</th>
<th>Findings</th>
</tr>
</thead>
</table>
| 1  | Kyle Jacques R, Renza S. (2020) | Behavioural therapy | 1. Make sure to have all the needed supplies and diabetes medications for at least one month if possible.  
2. Stay connected to support networks such as health and environmental professionals like friends. Use social media, virtual gatherings, or the phone.  
3. Follow health protocols. Wash your hands frequently, maintain physical distance, wear personal protective equipment such as masks, and avoid large-scale social gatherings  
4. Limit reading news that causes anxiety. Rely on trusted sources such as the diabetes organization and WHO |
| 2  | Banerjee M, Chakraborty S, Pal R. (2020) | Cognitive, affective and behavioural therapy | 1. Patients should feel free to discuss psychological problems with their healthcare professionals via telecommunications. In addition, doctors must also regularly ask about the mental health status of DM patients.  
2. People with diabetes doctors/educators can coordinate teleconsultation with psychiatrist to help patients overcome psychological problems amid the ongoing pandemic.  
3. People with diabetes can spend quality time with the people closest and dearest.  
4. People with diabetes can minimize watching, reading, or listening to news about COVID-19 |
2. Health workers need to take a proactive approach and principles of cognitive therapy.  
3. Health workers need to emphasize the importance and success rate of preventive protective measures such as physical distancing and sanitation practices  
4. Health workers can provide mindfulness interventions  
5. Health workers need to educate on the impact of stress on blood sugar levels and immunity  
6. Health workers can support the use of problem-solving coping  
7. Collaborate with the patient to develop alternative plans for physical activity while maintaining preventive norms  
8. Involve family members in alternative plans and help as needed  
9. Health workers need to identify the presence or absence of patient interpersonal problems before the pandemic  
10. Instruct and support patient using alternative means of communication and interaction. Involving the family in the care process  
11. Emphasize the patient to do physical distancing in social situations and not emotional distancing.  
12. Monitor patients regularly and ensure regular patient compliance  
13. Keep the patient connected to psychiatric services  
14. Perform mental health assessments such as signs of anxiety and depression on a regular basis to the patient  
15. In patients with poor glycemic control, do an in-depth mental health assessment and carry out integrated care |
| 4  | Melaku T, Assefa D, Bayisa B, Legese N. (2020) | Cognitive | 1. Interventions to control disease status Promote easy |
Serious psychological problems are evident in people with diabetes during the COVID-19 pandemic. A study by Barchetta et al. (2020) reported that 6.7% of participants had suicidal ideation. Research by Barchetta et al. (2020) also indicated that 44.2% of people with diabetes in Brazil experienced anxiety and depression. The third psychological problem concerns people with diabetes about diabetes management difficulties during a pandemic. The first psychological problem is stress during the COVID-19 pandemic (Agarwal et al., 2020; Barchetta et al., 2020; Fisher et al., 2020; Gosh et al., 2020). The second psychological problem is fear of COVID-19 infection (Joensen et al., 2020; Khare & Jindal, 2020). The third psychological problem concerns people with diabetes about diabetes management difficulties during a pandemic (Alessi et al., 2020; Fisher et al., 2020; Joensen et al., 2020; Sankar et al., 2020). The main goal of diabetes management is to keep blood sugar levels within normal ranges (Lin et al., 2017). However, maintaining blood sugar levels within the normal range is a challenge for diabetes people because blood sugar levels can be affected by many effects. The current COVID-19 pandemic can add to diabetes management’s burden in managing diabetes, which is challenging to do (Kyle Jacques & Renza, 2020). The third psychological problem is anxiety and depression. Research on 120 people with diabetes in Brazil showed that 44.2% of participants experienced anxiety and depression, and even 6.7% had suicidal ideation during the COVID-19 pandemic (Alessi et al., 2020). This indicates that the psychological problem of people with diabetes during a pandemic is seriously important for health workers to take care.

### Psychological Impact of Diabetes Patients during the COVID-19 Pandemic

During the COVID-19 pandemic, people with diabetes are a vulnerable group to experience psychological problems. The first psychological problem is stress during the COVID-19 pandemic. Stress can affect their mental health and well-being. The second psychological problem is fear of COVID-19 infection. This fear can lead to anxiety and depression. The third psychological problem is anxiety and depression. Anxiety and depression can negatively impact their daily lives and management of their diabetes.

### Psychological Intervention for Diabetes Patients During the COVID-19 Pandemic

Psychological interventions can help people with diabetes during the COVID-19 pandemic. Three interventions are recommended:

1. **Interventions to improve patient adherence to the treatment regimen**
2. **Conduct consultations to support physical and mental health during the pandemic**
3. **Provide social support**
4. **Conduct consultations to support physical and mental health during the pandemic**

### Intervention Methods for Diabetes Patients during the COVID-19 Pandemic

<table>
<thead>
<tr>
<th>No</th>
<th>Author and Year</th>
<th>Therapeutic Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Melaku T, Assefa D, Bayisa B, Legese N, (2020); Ranscombe P. (2020)</td>
<td>Telemedicine</td>
</tr>
<tr>
<td>3</td>
<td>Mukona DM, Zvinavashe M. (2020)</td>
<td>Telecommunication</td>
</tr>
<tr>
<td>4</td>
<td>Clary L, Wang C, Byrne ME, Monaghan M. (2020); Ranscombe P. (2020)</td>
<td>Telehealth</td>
</tr>
</tbody>
</table>

### Psychological Intervention of Diabetes Patients During the COVID-19 Pandemic

Psychological intervention for people with diabetes during a pandemic can be carried out in various ways. The first way is through stress management. Health workers need to encourage people with diabetes to focus on things they can control, such as doing the best possible diabetes management, rather than focusing on things beyond their control. The second psychological problem is fear of COVID-19 infection. Such concerns can arise from a lot of news about the poor prognosis of people with diabetes if infected with COVID-19. The third psychological problem is anxiety and depression. Anxiety and depression can negatively impact their daily lives and management of their diabetes.
people with diabetes who have severe anxiety levels as a result of thinking about the inevitable deaths during the COVID-19 pandemic (Singhai et al., 2020). The fifth intervention is to provide therapy mindfulness (Ranscombe, 2020; Singhai et al., 2020). Mindfulness therapy has been shown to effectively deal with stress during the COVID-19 pandemic in Italy’s general population (Conversano et al., 2020). The sixth intervention is to conduct education related to COVID-19 and diabetes management during the COVID-19 pandemic (Mukona & Zvinavashe, 2020; Ranscombe, 2020; Singhai et al., 2020). Education related to COVID-19 is significant so that people with diabetes understand precautions and what they need to do if they have signs and symptoms of COVID-19. Meanwhile, education related to disease management is important so that people with diabetes continue to adhere to the treatment regimen during the pandemic (Banerjee, Chakraborty, & Pal, 2020a).

**CONCLUSIONS AND SUGGESTIONS**

People with diabetes are a vulnerable group during the COVID-19 pandemic, so guidelines for psychological intervention in people with diabetes are essential to support and improve the mental health of people with diabetes during the pandemic. There are three psychological intervention guidelines for people with diabetes during the pandemic. The first is the psychological response of people with diabetes during a pandemic, namely, stress, worry about COVID-19 infection, and worry about diabetes management difficulties, and anxiety and depression. The second guideline is a psychological intervention for diabetes patients during the pandemic, namely stress management, encouraging people with diabetes to maintain social relationships, consultation, cognitive therapy, mindfulness therapy, and education. The third recommendation is the psychological intervention method for people with diabetes during the pandemic using telepsychiatry. Further research is needed regarding the level of effectiveness and satisfaction levels of people with diabetes with telepsychiatry during the COVID-19 pandemic.

**LIMITATION OF THE STUDY**

This systematic review does not involve studies that do not use English, is not open access and only from four research journal databases.


Wilson, N., Corbett, S., & Tovey, E. (2020). Airborne transmission of covid-19. *Bmj, 370*, m3206. doi:10.1136/bmj.m3206


