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Short Communication

The Effect of Virtual Coping Skills Training on Self-efficacy of Adolescents With Type 1 Diabetes During COVID-19 Pandemic Lockdown: A Pilot Study

Zeinab Shokouhi[1], Nafiseh Hamiditabar[2], Fatemeh Naderi[3], Fatemeh Meri[4], Fatemeh Saadat[5*], Javad Seyed Jafari[6]

1. Department of Clinical Psychology, School of Humanity, Shiraz Branch, Islamic Azad University, Shiraz, Iran.
2. Department of Educational Science and Psychology, Faculty of Psychology and Education, Khorasgan (Isfahan) Branch, Islamic Azad University, Isfahan, Iran.
3. Department of Psychology, School of Humanity, Naeen Branch, Islamic Azad University, Naeen, Iran.
4. Department of Psychology, School of Humanity, Central Tehran Branch, Islamic Azad University, Tehran, Iran.
5. Department of Psychology, School of Humanity, Iranshahr University of Medical Sciences, Iranshahr, Iran.
6. Department of Psychology, School of Psychology and Education, Allameh Tabataba'i University, Tehran, Iran.

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ABSTRACT

Background: Type 1 diabetes patients may find it difficult to cope with diabetes-related stress, which can be improved by accessible interventions.

Objectives: The goal of this study was to determine whether coping skill training could increase self-efficacy among adolescents with type 1 diabetes during the COVID-19 pandemic lockdown.

Materials & Methods: This study was conducted as a pretest-posttest design with a control group. The study population was adolescents diagnosed with type 1 diabetes at Tehran Diabetes Center during the COVID-19 pandemic lockdown from June to August 2021. Sixteen adolescents with type 1 diabetes were selected using a purposeful sampling method. The participants were divided into experimental (n=9) and control groups (n=7). The measurement tool was the General Self-efficacy Scale. A total of eight sessions of coping skill training took place for the experimental group; no intervention was performed for the control group. A multivariate analysis of covariance was used to analyze the data. Statistical analysis was performed utilizing SPSS software, v. 23.

Results: There was no significant difference between the intervention and control groups in terms of age sex, and baseline score of self-efficacy. In the posttest, self-efficacy score significantly improved in the intervention (71.52±13.86) compared to the control group (48.13±12.96) ($F=18.97$, $P<0.001$, $\eta^2=0.59$).

Conclusion: According to this study, adolescents with type 1 diabetes who received training in coping skills showed increased self-efficacy. As a result, it can be concluded that adolescents with type 1 diabetes need coping skills training interventions, including self-management support.

Keywords: Coping skills, Self-efficacy, Adolescent, Type 1 diabetes, COVID-19, Pandemic, lockdown

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*** Corresponding Author:**
Fatemeh Saadat, MSc.
Address: *Department of Psychology, School of Humanity, Iranshahr University of Medical Sciences, Iranshahr, Iran.*
Tel: *+98 (913) 3627338*
E-mail: *saadatf20@gmail.com.*

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1. Introduction

COVID-19 has swept the globe and has now been considered a global health issue. As of January 2022, over 350 million people have been infected and at least 5 million have died since the disease emerged in China in November 2019 [1]. To prevent the possibility of infection, medical clinics have restricted access due to the COVID-19 pandemic. Hence, the routine care of patients with chronic diseases such as diabetes has become a major challenge in this context. During the COVID-19 pandemic, several strategies were implemented to assist patients with type 1 and type 2 diabetes and to prevent exacerbations [2-5]. A healthy lifestyle consisting of a nutritious diet and regular physical activity is recommended for patients with diabetes to reduce the risk of infection, monitor blood sugar levels, take medication, inject insulin and noninsulin drugs adequately, and maintain a healthy weight [6]. As a result of the experience of physical and social isolation, the COVID-19 pandemic also impacted the pediatric population psychologically. Many children and adolescents with Type 1 Diabetes (T1D) didn't follow up on scheduled outpatient follow-up visits, and they encountered numerous obstacles that forced them to change their diabetes management approach [7].

Self-efficacy is an important component in improving diabetes self-management skills. Adolescents with T1D with better self-efficacy reported a higher probability of reaching target diabetes control [8]. Studies have shown that self-efficacy is effective at reducing stress and generating coping strategies for individuals dealing with stressful life events [9]. In the COVID-19 pandemic, self-efficacy was associated with positive outcomes [10]. Even though self-efficacy plays a positive role in managing stressful events, these events can also undermine self-efficacy [11]. According to Alexander and Ward, people dealing with disasters have low coping abilities and physiological responses such as sweat and pain, which reduces self-efficacy [12].

The authors reported that diabetes patients are four times more likely to die from COVID-19 [13]. In a study by Bonora et al. published in 2020, patients with Type 1 diabetes who were locked up during lockdowns were better able to control their blood sugar levels [14]. Due to the COVID-19 pandemic, health care professionals make unprecedented changes to health care systems, social services, as well as how to manage children with diabetes [15].

Although countries and communities have reacted differently to the pandemic and lockdown, many households and individuals have used idiosyncratic approaches to overcome their peculiar challenges. The characteristics of individuals' coping strategies have influenced their coping strategies, such as gender, preexisting health conditions, work status, and other sociodemographic factors [16-18]. Additionally, earlier studies indicate that the utility of coping strategies varies depending on the situation [19, 20].

It is therefore critical for public health policy and interventions to identify which coping mechanisms work in particular settings, such as the ongoing COVID-19 pandemic Thus, the purpose of this study was to examine the effectiveness of coping skills training on self-efficacy among adolescents with type 1 diabetes during the COVID-19 pandemic lockdown.

2. Materials and Methods

Study type and study population

The current research was conducted as a pilot study using pre-test, post-test design with a control group from June to August 2021. The study was implemented in collaboration with the Tehran Diabetes Center in Iran. Two diabetes experts and a pediatric endocrinologist verified the T1D diagnosis of the patients in the diabetes center. A total of 16 participants were selected through a purposeful sampling process when referred to the Tehran Diabetes Center. They were non-randomly allocated to the intervention (n=9) and control (n=7) groups. The inclusion criteria were age between 12-18 years old, at least six months since diabetes diagnosis, and satisfaction with participating in the study. Those patients who had recently received coping strategies training or currently participating in coping strategies programs, were unwilling to continue the sessions or missed more than two training sessions were excluded from the study. The parents and guardians of the participants received an online presentation of the study objectives, design, duration, and how they could withdraw from the study. Then they were taken informed consent. The information of the participants was kept confidential and anonymous.

Intervention protocol

Due to quarantine conditions and the health risk of infection transmission, training sessions was held through online education in Whats App. The contents of coping skills training were designed based on Grey et al.'s [21] and are presented in Table 1. Online training sessions were held

Table 1. Content of the intervention sessions

Sessions	Contents
Introduction	Participants were introduced to the interventionist during the first session, after which they introduced themselves to the interventionist. Afterward, coping skills were taught to the participants.
Recognizing the disease	The adolescents were provided with information about diabetes and its etiology, symptom, and treatment.
Principles of self-care	Participants were instructed on how the disease affects adolescents and how they can take care of themselves (nutrition, physical activity, prevention of infection, vaccination, medications).
Stress management	During this session, the students expressed their feelings regarding diabetes as well as its complications and symptoms (anxiety and depression).
Communication skills training	An interventionist described training in communication skills, social skills, and assertiveness in this session.
Cognitive-behavioral modification	The purpose of this session was to modify self-dialogue through understanding one's thoughts and feelings towards more positive messages.
Problem-solving	The interventionist explained what a problem is, how problem-solving works, the stages of problem-solving, and how these f actors are applicable in managing and coping with stress.
Final	An evaluation of the interventionist and the coping skills training took place in this session. The interventionist also answered questions from the adolescents.

for eight weeks and last for 90 minutes. Both groups completed General Self-efficacy (GSE) scale and submitted it via a link before and after the training sessions.

Study instrument

Self-efficacy was measured using GSE that was developed by Sherer et al. in 1982 [22]. The purpose of this scale is to measure "a general set of expectations that an individual brings with him or her into new situations". The questionnaire consisted of 17 items scored from strongly disagree (score=1) to strongly agree (score=5) on a 5-point Likert scale. GSE scores ranged from 17 to 85, with higher scores indicating higher self-efficacy. Other Iranian studies have also used the Persian version of GSE. The Persian version of GSE reported internal consistency of 0.78 [23]. GSE was found to exhibit an internal consistency reliability coefficient (Cronbach's) and test-retest reliability that was assessed via Pearson correlation coefficients to be 0.91 and 0.93, respectively.

Statistical analysis

Data were described using Mean±SD frequency and percent. Normal distribution of continuous variable was assessed using Shapiro-Wilk test. Analysis of covariance (ANCOVA) was conducted to find out whether coping skills training could improve the self-efficacy of adolescents with type 1 diabetes during the COVID-19 pandemic lockdown. All Statistical analysis was performed using SPSS software, v. 23.

3. Results

The Mean±SD age of participants with T1D in the intervention and control groups were 13.87±1.34 and 13.46±1.76 years old, respectively (P=0.16). Furthermore, 49% of the participants in the intervention group and 51% of the participants in the control group were female (P=0.11).

Baseline self-efficacy Mean±SD was not significantly different between the intervention (45.44±13.377) and the control group (46.49±14.174) (P<0.05). In the posttest, the result of covariance analysis adjusted for the baseline self-efficacy score showed that self-efficacy score significantly improved in the intervention (71.52±13.86) compared to the control group (48.13±12.96) (F=18.97, P=0.001, η^2=0.59).

4. Discussion

Study results indicated that coping skills training helped adolescents with type 1 diabetes become more self-confident during the COVID-19 pandemic lockdown. Problem-solving skills can help resolve or accelerate the resolution of a problem. During a pandemic, individuals need to develop coping skills in order to cope with the effects to ease and to support their mental health [24, 25]. It was self-efficacy that was essential to maintaining mental health and optimism in the course of the COVID-19 pandemic [10, 11].

It is argued, however, that these strategies may exhibit varying effectiveness depending on context [20]. According to the results of this study, self-efficacy was improved among adolescents with diabetes after coping skills training, which was consistent with other studies [23-28]. In a study on school-aged children with type 1 diabetes, coping skills training significantly improved psychosocial adaptation [26] and improved psychosocial and diabetes self-management outcomes [27].

Moreover, Edraki et al. [8] showed coping skills training improved the patients' self-efficacy, they suggested that the use of this intervention could be a part of community-based nursing practice for adolescents with diabetes. Guo et al. [27] demonstrated that improving self-efficacy is an important strategy to improve diabetes self-management in adolescents with T1D. In another research, they showed the coping skills training program had no significant effect on primary outcomes of perceived stress, coping, and self-efficacy and secondary outcomes of diabetes self-management, quality of life, and glycated Hemoglobin A1c (HbA1c) over 12 months. However, there was a significant increase in positive coping, self-efficacy, diabetes problem-solving and goals of diabetes self-management, and quality of life of school-aged children in the intervention group compared with the control group [28].

Coping skills training may enhance the ability of adolescents with diabetes to cope with their daily issues and to be more effective in achieving the therapeutic goals, especially when this intervention is accompanied by ongoing follow-up care. Furthermore, training such patients regarding problem-solving helps them think of new, less differentiating behaviors that allow them to adhere to a diabetes diet [8].

This was a pilot study with inherent limitations in terms of small sample size and non-random allocation. There was a lack of long-term follow-ups after the intervention, which indicates the necessity for another longitudinal study. In addition, generalizing the results of this study is difficult due to its non-random sample method (purposeful). Another limitation in this study is the lack of assessment of important intervention variables like the duration of diabetes and socioeconomic conditions. Further studies should take into account this demographic variable. Study participants were recruited exclusively from one diabetes center in Tehran, which was a limitation of the study. Accordingly, it is vital to conduct similar studies in other parts of our country and abroad.

5. Conclusion

Study results indicated that adolescents with type 1 diabetes who received coping skills training improved significantly in self-efficacy. It is essential to examine these research areas in future studies to evaluate the benefits, sustainability, safety, and optimization strategies for telemedicine and other digital approaches as key elements of modern healthcare delivery.

Ethical Considerations

Compliance with ethical guidelines

We followed the Helsinki declaration of 1964 and its later amendments or similar ethical standards in all procedures involving human participants (IRSHUMS.REC.1400.077.).

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Authors' contributions

All authors have equally contributed in preparing the article.

Conflict of interest

The authors declared no conflict of interest.

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References

[1] Labrague LJ, Ballad CA. Lockdown fatigue among college students during the COVID-19 pandemic: Predictive role of personal resilience, coping behaviors, and health. MedRxiv. 2020; 1-23. [DOI:10.1101/2020.10.18.20213942]

[2] Rayman G, Lumb A, Kennon B, Cottrell C, Nagi D, Page E, et al. Guidelines for the management of diabetes services and patients during the COVID-19 pandemic. Diabet Med. 2020; 37(7):1087-9. [DOI:10.1111/dme.14316] [PMID]

[3] Ghosh A, Gupta R, Misra A. Telemedicine for diabetes care in India during COVID19 pandemic and national lockdown period: Guidelines for physicians. Diabetes Metab Syndr Clin Res Rev. 2020; 14(4):273-6. [DOI:10.1016/j.dsx.2020.04.001]

[4] Jones MS, Goley AL, Alexander BE, Keller SB, Caldwell MM, Buse JB. Inpatient transition to virtual care during COVID-19 pandemic. Diabetes Technol Ther. 2020; 22(6):444-8. [DOI:10.1089/dia.2020.0206] [PMID] [PMCID]

[5] Garg SK, Rodbard D, Hirsch IB, Forlenza GP. Managing new-onset type 1 diabetes during the COVID-19 pandemic: Challenges and opportunities. Diabetes Technol Ther. 2020; 22(6):431-9. [PMID]

[6] Parise M, Tartaglione L, Cutruzzolà A, Maiorino MI, Esposito K, Pitocco D, et al. Teleassistance for patients with type 1 diabetes during the COVID-19 pandemic: Results of a pilot study. J Med Internet Res. 2021; 23(4):e24552. [DOI:10.2196/24552] [PMID] [PMCID]

[7] Passanisi S, Pecoraro M, Pira F, Alibrandi A, Donia V, Lonia P, et al. Quarantine due to the COVID-19 pandemic from the perspective of pediatric patients with type 1 diabetes: A web-based survey. Front Pediatr. 2020; 8:491. [DOI:10.3389/fped.2020.00491] [PMID] [PMCID]

[8] Edraki M, Rambod M, Molazem Z. The effect of coping skills training on depression, anxiety, stress, and self-efficacy in adolescents with diabetes: A randomized controlled trial. Int J Community Based Nurs Midwifery. 2018; 6(4):324-33. [PMID]

[9] Chowdhury S, Goswami S. COVID-19, and type 1 diabetes: Dealing with the difficult duo. Int J Diabetes Dev Ctries. 2020; 1-6. [DOI:10.1007/s13410-020-00846-z] [PMID] [PMCID]

[10] Kebede Y, Yitayih Y, Birhanu Z, Mekonen S, Ambelu A. Knowledge, perceptions and preventive practices towards COVID-19 early in the outbreak among Jimma university medical center visitors, Southwest Ethiopia. PloS One. 2020; 15(5):e0233744. [DOI:10.1371/journal.pone.0233744] [PMID] [PMCID]

[11] Zuo B, Wang Q, Qiao Y, Ding Y, Wen F. Impact of divergent thinking training on teenagers' emotion and self-efficacy during the COVID-19 pandemic. Front Psychol. 2021; 12:600533. Erratum in: Front Psychol. 2021; 12:686118. [DOI:10.3389/fpsyg.2021.600533] [PMID] [PMCID]

[12] Alexander AC, Ward KD. Understanding postdisaster substance use and psychological distress using concepts from the self-medication hypothesis and social cognitive theory. J Psychoactive Drugs. 2018; 50(2):177-86. [PMID] [PMCID]

[13] Şahinol M, Başkavak G. Contested daily routines, contested care. Children with type 1 diabetes in COVID-19 times. Childhood Vulnerability. 2021; 3(1-3):23-40. [DOI:10.1007/s41255-021-00017-0] [PMCID]

[14] Bonora BM, Boscari F, Avogaro A, Bruttomesso D, Fadini GP. Glycaemic control among people with type 1 diabetes during lockdown for the SARS-CoV-2 outbreak in Italy. Diabetes Ther. 2020; 11(6):1369-79. [DOI:10.1007/s13300-020-00829-7] [PMID] [PMCID]

[15] Elbarbary NS, Dos Santos TJ, de Beaufort C, Agwu JC, Calliari LE, Scaramuzza AE. COVID-19 outbreak and pediatric diabetes: Perceptions of health care professionals worldwide. Pediatr Diabetes. 2020; 21(7):1083-92. [DOI:10.1111/pedi.13084] [PMID] [PMCID]

[16] Venuleo C, Marinaci T, Gennaro A, Palmieri A. The meaning of living in the time of COVID-19. A large sample narrative inquiry. Front Psychol. 2020; 11:577077. [DOI:10.3389/fpsyg.2020.577077] [PMID] [PMCID]

[17] Asmundson GJG, Paluszek MM, Landry CA, Rachor GS, McKay D, Taylor S. Do pre-existing anxiety-related and mood disorders differentially impact COVID-19 stress responses and coping? J Anxiety Disord. 2020; 74:102271. [DOI:10.1016/j.janxdis.2020.102271] [PMID] [PMCID]

[18] Adom D, Adu-Mensah J, Sekyere PA. Hand-to-mouth work culture and the COVID-19 lockdown restrictions: Experiences of selected informal sector workers in Kumasi, Ghana. Res J Adv Humanit. 2020; 1(2):45-63. https://royalliteglobal.com/advanced-humanities/article/view/237

[19] Park CL, Russell BS, Fendrich M, Finkelstein-Fox L, Hutchison M, Becker J. Americans' COVID-19 stress, coping, and adherence to CDC guidelines. J Gen Intern Med. 2020; 35(8):2296-303. [DOI:10.1007/s11606-020-05898-9] [PMID] [PMCID]

[20] Iddi S, Obiri-Yeboah D, Aboh IK, Quansah R, Owusu SA, Enyan NIE, et al. Coping strategies adapted by Ghanaians during the COVID-19 crisis and lockdown: A population-based study. Plos One. 2021; 16(6):e0253800. [DOI:10.1371/journal.pone.0253800] [PMID] [PMCID]

[21] Grey M, Whittemore R, Jaser S, Ambrosino J, Lindemann E, Liberti L, et al. Effects of coping skills training in school-age children with type 1 diabetes. Res Nurs Health. 2009; 32(4):405-18. [DOI:10.1002/nur.20336] [PMID] [PMCID]

[22] Sherer M, Adams CH. Construct validation of self-efficacy scale. Psychol Rep. 1983; 53(3):899-902. [DOI:10.2466/pr0.1983.53.3.899]

[23] Edraki M, Kamali M, Beheshtipour N, Amoozgar H, Zare N, Montaseri S. The effect of educational program on the quality of life and self-efficacy of the mothers of the infants with congenital heart disease: A randomized controlled trial. Int J Community Based Nurs Midwifery. 2014; 2(1):51-9. [PMID]

[24] Labrague LJ, De Los Santos JAA. COVID-19 anxiety among front-line nurses: Predictive role of organizational support, personal resilience, and social support.J Nurs Manag. 2020; 28(7):1653-61. [DOI:10.1111/jonm.13121] [PMID] [PMCID]

[25] Liang L, Ren H, Cao R, Hu Y, Qin Z, Li C, et al. The effect of COVID-19 on youth mental health. Psychiatr Q. 2020; 91(3):841-52. [DOI:10.1007/s11126-020-09744-3] [PMID] [PMCID]

[26] Garris CP, Fleck B. Student evaluations of transitioned-online courses during the COVID-19 pandemic. Scholarsh Teach Learn Psychol. 2020. [DOI:10.1037/stl0000229]

[27] Guo J, Luo J, Yang J, Huang L, Wiley J, Liu F, et al. School-aged children with type 1 diabetes benefit more from a coping skills training program than adolescents in China: 12-month outcomes of a randomized clinical trial. Pediatr Diabetes. 2020; 21(3):524-32. [DOI:10.1111/pedi.12975] [PMID]

[28] Guo J, Yang J, Wiley J, Ou X, Zhou Z, Whittemore R. Perceived stress and self-efficacy are associated with diabetes self-management among adolescents with type 1 diabetes: A moderated mediation analysis. J Adv Nurs. 2019; 75(12):3544-53. [DOI:10.1111/jan.14179] [PMID]

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