



Effectiveness of Occupational Therapy on Self-Efficacy in Adolescents and Young Adults with Type 1 Diabetes: A Systematic Review

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ABSTRACT

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This systematic review aimed to examine occupational therapy interventions that promote self-efficacy in adolescents and young adults with Type 1 Diabetes (T1D). A comprehensive literature search was conducted using PubMed, ScienceDirect, OTseeker, and Google Scholar. The review included full-text English-language studies published between 2018 and 2023 that addressed occupational therapy practices involving adolescents or young adults with T1D. A total of 672 studies were initially identified. After removing duplicates and excluding studies that did not meet the inclusion criteria—such as those without occupational therapy components, non-English articles, or unavailable full texts—five studies were included for analysis. The findings were categorized into two types of interventions: psychosocial and reading-based. Occupational therapy interventions were found to improve self-efficacy and positively influence related outcomes, including quality of life, treatment adherence, mood, stress, and coping skills. Psychosocial strategies were especially effective in addressing emotional well-being and self-management. Despite these benefits, such interventions remain underrepresented in literature. The review emphasizes the need to integrate occupational therapy more prominently in diabetes care and to further investigate its effectiveness through interdisciplinary and longitudinal research.

Keywords: Type-1 diabetes, adolescent, young adult, self-efficacy

1. INTRODUCTION

Diabetes is a major public health concern in the 21st century due to its increasing prevalence and its associated risks of morbidity and mortality. According to the most recent statistical report published in 2020, diabetes is more prevalent in developed countries compared to developing nations (1,2). Chronic diseases and their treatments significantly influence patients' quality of life and lifestyle. This impact is especially pronounced when diabetes is

accompanied by other chronic conditions. The burden of diabetes is multifaceted—psychological, physical, and social—affecting patients' treatment adherence, disease management, and ultimately their self-care behaviors (3,4). Diabetes is generally classified into two main types: Type 1 diabetes (T1D) and Type 2 diabetes (5).

T1D is a chronic metabolic and endocrine disorder affecting more than 8 million individuals globally, with a particularly high prevalence among children (6,7). Over the past 50 years, the global prevalence of T1D

has rapidly increased, rising from 5.9 to 15 cases per 10,000 individuals per year (8). Although the incidence of T1D peaks during adolescence and early adulthood, it can manifest at any age. While many individuals live for decades after diagnosis, the disease can negatively affect psychosocial well-being—especially during adolescence and young adulthood—leading to reduced self-esteem, diminished quality of life, and lower levels of self-efficacy (9).

Self-efficacy refers to an individual's belief in their capability to execute behaviors necessary to achieve specific outcomes (10). Adolescents and young adults with T1D may face challenges related to self-efficacy, largely due to the nature of current diabetes treatments. These treatments require patients to actively manage their condition, including calculating appropriate insulin dosages, planning meals, adhering to treatment regimens, and incorporating physical activity. This level of responsibility offers patients opportunities to employ self-management skills and cope with daily stressors (11,12).

To date, few interventions have demonstrated effectiveness in promoting lifestyle changes that support diabetes self-management. The specialized knowledge of occupational therapists in facilitating health-promoting lifestyle changes represents a promising avenue for developing and implementing such interventions. Lifestyle modification plays a crucial role in effective diabetes management (13,14).

Although some strategies in occupational therapy

overlap with those used in other healthcare disciplines, occupational therapists play a unique and vital role in diabetes care teams. They offer comprehensive interventions that empower individuals to manage their diabetes through targeted diabetes self-management (DM) activities (15). Effective interventions should address both the physical and psychosocial dimensions of chronic disease. Occupational therapy brings distinct strengths to this area, particularly in promoting participation, supporting meaningful occupations, and delivering health-related education (16).

Self-efficacy—the capacity to handle daily life challenges and maintain personal well-being—is especially central to occupational therapy practice. However, current literature offers limited insights into how generalized self-efficacy can be supported in adolescents and young adults. Therefore, the aim of this systematic review is to examine interventions that target self-efficacy among adolescents and young adults with T1D within the occupational therapy literature. This review seeks to assess the effectiveness of these interventions and provide guidance for occupational therapists and other healthcare professionals regarding practices that enhance self-efficacy.

2. MATERIALS AND METHODS

This study conducted a comprehensive literature search in the PubMed, ScienceDirect, OTseeker databases, and Google Scholar to investigate occupational therapy practices aimed at enhancing

Table 1. Key search terms

'self-sufficiency' OR 'self-efficacy' OR 'self-efficacy' OR 'self-sufficiency'
AND
'Occupational therapy in adolescents' OR 'occupational therapy in young adults' OR 'OT in adolescents' OR 'OT in young adults'

Table 2. Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Studies involving occupational therapy intervention only for T1D patients.	Panel or paper presentations, books and documents, review studies, master's and doctoral theses, conference abstracts
Studies involving adolescents and young adults.	
Studies were published between 2018 and 2023.	
Articles with full text access in English	

self-efficacy in individuals with Type 1 Diabetes (T1D) between 2018 and 2023. The search process employed specific keywords, as outlined in Table 1.

The retrieved articles were reviewed and filtered based on a set of predefined exclusion criteria. Studies were excluded if they met any of the following conditions:

Did not involve interventions for individuals with T1D,

Did not include occupational therapy practices,

Did not focus on self-efficacy,

Were panel or paper presentations, books or non-peer-reviewed documents, review articles, master's and doctoral theses, or conference abstracts.

These criteria were established based on prior systematic reviews in the occupational therapy

literature focusing on individuals with diabetes. The complete inclusion and exclusion criteria used to guide study selection are presented in Table 2.

A total of 669 studies were identified through the initial keyword searches. Specifically, 33 studies were obtained from ScienceDirect, 2 from PubMed, and an additional 637 were scanned through Google Scholar. These studies were screened according to the inclusion and exclusion criteria, and those not meeting the eligibility requirements were removed.

Subsequently, the studies were further assessed based on their article types, leading to the exclusion of 543 irrelevant or non-research-based publications. After filtering by publication year (2018–2023), only 64 studies remained eligible for evaluation. Following a second round of screening using the inclusion and exclusion criteria, only 5 studies met all the requirements and were included in the final review (Figure 1).

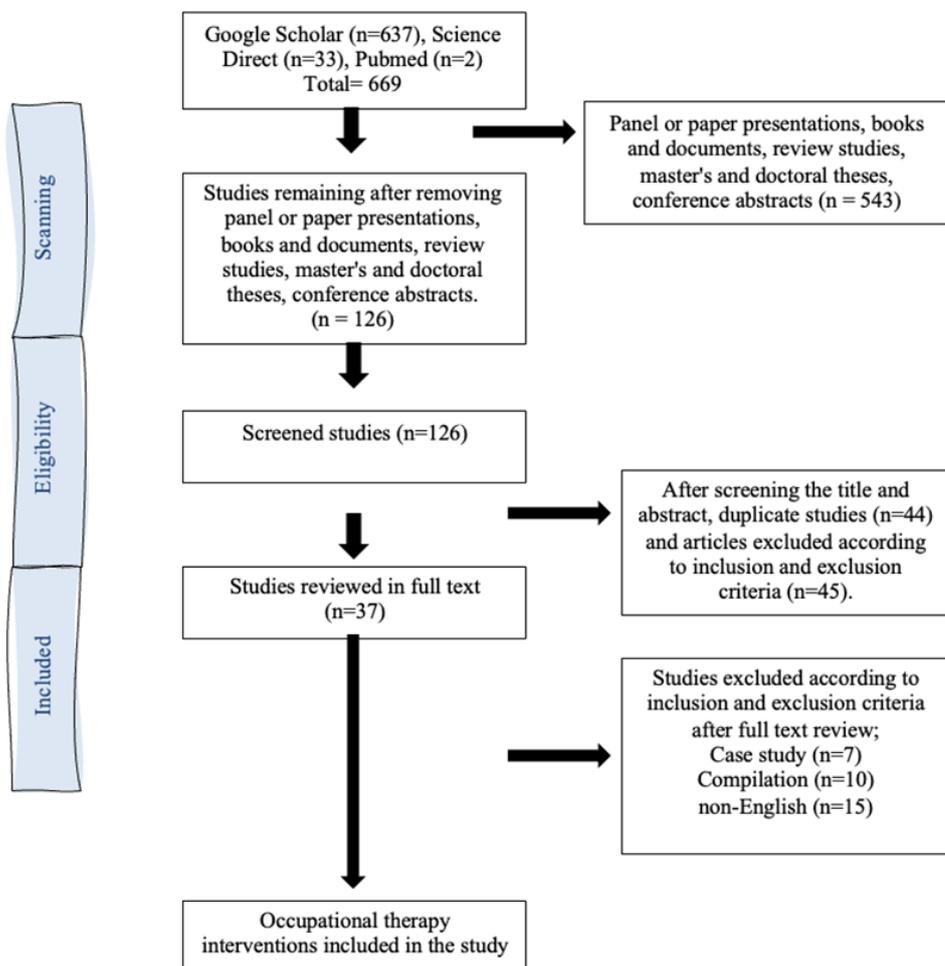


Figure 1. PRISMA flow chart.

The selected studies were then analyzed and discussed based on the following key categories:

- Type of publication source
- Participant sample characteristics
- Duration and frequency of interventions
- Content and focus of the intervention
- Measurement and evaluation tools used
- Main findings and reported outcomes

3. RESULT

A total of five published research articles met the inclusion criteria after the screening process. These studies were categorized based on two distinct intervention strategies: psychosocial interventions and occupation-based interventions.

3.1. Psychosocial Interventions

Four of the included studies explored interventions within the psychosocial domain (see Table 3 for descriptive characteristics and outcomes). These interventions included Coping Skills Training (CST) (18), Cognitive Behavioral Therapy (CBT), Non-Directive Supportive Counseling (NDSC) (19), the Guided Self-Determination-Youth (GSF-Youth) model (20), and Virtual Group Appointments (VGA) (21).

A total of 312 participants were involved in the psychosocial intervention studies, which collectively included 25 intervention sessions. CST was delivered by a pediatric nurse, while CBT and NDSC were facilitated by a psychologist. The facilitators for the GSF-Youth model were not clearly identified. The VGA intervention was conducted by an endocrinologist or a nurse practitioner trained in patient-centered care approaches.

While CST, CBT, NDSC, and GSF-Youth were directed at adolescents with T1D, the VGA intervention targeted young adults aged 18–25. These interventions aimed to enhance various psychosocial and clinical outcomes, including self-efficacy, anxiety, depression, glycemic control, quality of life, health behavior, family conflict, stress

management, social support systems, substance use, diabetes-related burnout, and overall stress (18–21).

3.2. Occupation-Based Intervention

Only one of the included studies utilized an occupation-based approach (see Table 4). This study evaluated the REAL Diabetes intervention, which is a reading-based digital program. Participants who engaged with the REAL Diabetes app demonstrated improvements in daily activity satisfaction, diabetes-specific self-efficacy, and problem-solving skills. The intervention also positively influenced diabetes-related distress, quality of life, depressive symptoms, and psychosocial well-being (19).

Type 1 Diabetes (T1D) is a chronic metabolic condition that significantly affects the lives of adolescents and their families. Its treatment requires a complex regimen involving insulin therapy, dietary management, and physical activity. Adolescence—a period marked by major physiological and psychological changes—presents unique challenges for individuals with T1D as they strive to establish identity and autonomy (22–25). During this critical developmental phase, maintaining and strengthening self-efficacy skills is often difficult.

4. DISCUSSION

The aim of this systematic review was to provide occupational therapists with evidence-based practices to support adolescents and young adults with T1D. The findings reinforce the importance of occupational therapy as a key discipline in diabetes care, working alongside other healthcare professionals to empower patients through self-efficacy development.

This is the first systematic review focusing exclusively on occupational therapy interventions for enhancing self-efficacy in individuals with T1D. The evidence indicates that these interventions yield positive outcomes, consistent with existing literature. However, an imbalance in the gender distribution among study participants was noted, underscoring the need for further research on how gender differences influence coping mechanisms and perceived competence (26).

Table 3. Findings regarding psychosocial intervention for individuals with Type 1 Diabetes

Source/ Publication Type	Sample size	Duration and frequency of intervention	Content of the Intervention	Measurement/ Evaluation Tools	Conclusion
(Edraki ve ark. 2018) Research article	N=100	4 weeks, 2 sessions per week, 90 minutes each session	Recognizing the disease, personal care principles, stress management, com- munication skills training, cognitive-behavioral change, problem solving	Depression, Stress, Anxiety Scale General Self- Efficacy Scale	Reduction in depres- sion, anxiety and stress levels, improve- ment in self-efficacy
(Wei ve ark. 2018) Research article	N=85	6 weeks, 1 session per week	Developing and maintaining a therapeutic relationship, cognitive restructuring; iden- tifying negative automatic thoughts, recognizing rela- tionships between thoughts, emotions, behaviors, devel- oping more balanced thoughts, problem solving, assertiveness training and relaxation	Diabetes Self- Efficacy Scale, Par- cel-Meyer Child Health Locus of Control Scale, Well- -Being Question- naire, Youth Diabe- tes Quality of Life Questionnaire, and Diabetes Family Behavior Scale	Moderate HbA1c, in- crease in self-efficacy and quality of life
(Brorsson ve ark. 2019) Research article	N=69	7 sessions, each session 2 hours, inter- vention period 5 months	Independence, spiritual strength, social inclusion, equality, physical ability, diabetes acceptance, physi- cal burden, emotional bur- den, quality of life burden	DISABKIDS, Check Your Health, Dia- betes Family Con- flict Scale and Swedish Diabetes Empowerment Scale	HbA1c moderate, im- provement in quality of life, self-efficacy and self-management
(Bisno ve ark. 2022) Research article	N=58	4 sessions of virtual group appointment, each session 30 minutes	Managing stress, building a support system, alcohol or drug abuse, and diabetes burnout	Diabetes Distress Scale, Diabetes Self-Efficacy Scale, Epidemiological Research Center Depression Scale, Diabetes Strengths and Resilience Scale, Adolescent Type-1 Diabetes Self-Management Scale, 5-Level EQ (5th Version) Scale	Moderate HbA1c, re- duced diabetes dis- tress, increased flexi- bility and self-efficacy, decreased depression, improved quality of life

Table 4. Findings regarding occupation-based intervention for people with Type 1 Diabetes

Source/Publication Type	Sample size	Duration and frequency of intervention	Content of the Intervention	Measurement/ Evaluation Tools	Conclusion
(Pyatak ve ark. 2018) Research article	N=81	Not specified	Assessment and goal set- ting, living with diabetes, access and advocacy, activi- ty and health, social support, emotional well-being, long- term health	Summary of Diabe- tes Self-Care Activi- ties, Diabetes- Related Quality of Life Audit, Diabetes Problem Areas- Short Form, Patient Health Survey-8, Life Satisfaction Scale, Diabetes Empower- ment Scale-Short Form, Diabetes Knowledge Ques- tionnaire, Diabetes Problem Solving Inventory, Behavior- al Automaticity In- dex Self-Report, Objective Participa- tion-Subjective Par- ticipation	HbA1c moderate, quality of life in- creased, self-care improved, diabetes distress decreased, depression de- creased, self-efficacy increased, problem solving

A previous study suggested that both gender and family conflict contribute to poor glycemic control, particularly among adolescent girls. The GSF-Youth model did not sufficiently address this challenge (27). Empowerment-based research by Gray et al. emphasized the critical role of parental involvement in diabetes management (28, 29). Similarly, Wysocki et al. found that cooperative parenting positively impacts both glycemic control and family dynamics (30). Educational program evaluations support these conclusions, highlighting the importance of a positive parent-child relationship in managing diabetes effectively (31).

Analysis of the five selected studies revealed that 80% of the interventions focused on psychosocial components and had a measurable positive effect on adolescents with T1D. Diabetes-related distress—such as lack of family support and anxiety about self-care tasks—is linked to inadequate symptom control. These factors can lead to poor glycemic outcomes, including elevated HbA1c levels and increased insulin bolus use (32).

Research by Bisno et al. indicated that peer support, as implemented in the CoYoT1 Clinic model, addresses social support gaps often overlooked in conventional care. Ambrosino et al. found that coping skills training significantly enhanced the psychosocial adaptation of school-aged children with T1D (33). Habibi et al. reported reductions in depression, anxiety, and stress following stress management training among individuals with substance use disorders (34). Edraki et al. echoed these results in adolescents with T1D (35). Additionally, Gray et al. observed long-term improvements in self-efficacy among children aged 8–12 and their parents after coping skills training.

A study involving adolescents aged 12.5 to 20 years reported greater general self-efficacy six months post-intervention (36). Similarly, Wei et al. found that both CBT and NDSC led to improved self-efficacy, with no significant difference between the two methods. This aligns with findings from Snoek et al., who compared CBT to blood glucose awareness training in adults

with T1D (37). McGrady et al. also reported decreased depressive symptoms and improved diabetes management after 12 CBT sessions among adolescents with subclinical depression (38).

The REAL Diabetes intervention showed a treatment adherence rate consistent with other behavioral approaches, such as the Treatment Options for Type 2 Diabetes in Adolescents and Youth (TODAY) study, which also reported a 60% compliance rate (39). The study also revealed that participants with T2D had higher HbA1c levels than those with T1D, supporting the notion that juvenile-onset T2D is more aggressive and harder to manage (40, 41).

4.1. Limitations

This study has several limitations. First, the literature review was confined to four databases, some of which may not specialize in occupational therapy. Second, the inclusion of only studies published between 2018 and 2023 could have excluded relevant earlier research. Third, only articles written in English were considered. These limitations must be acknowledged when interpreting the results. Furthermore, our focus was exclusively on occupational therapy-related studies, which may have introduced professional bias due to our affiliation with the field. Future research should aim to incorporate multi-disciplinary perspectives by including interventions developed collaboratively across healthcare disciplines.

5. CONCLUSION

Occupational therapy programs aimed at enhancing self-efficacy have demonstrated positive effects on adolescents and young adults with Type 1 Diabetes (T1D). These interventions contribute to improvements in quality of life, social functioning, treatment adherence, mood regulation, problem-solving abilities, and coping skills, while also reducing stress, depression, and anxiety. Given these outcomes, it is essential to promote the integration of self-efficacy-focused occupational therapy programs into routine clinical practice. Despite their demonstrated benefits, such programs remain underrepresented in the current literature,

highlighting the need for greater attention and implementation. Particular emphasis should be placed on psychosocial interventions, as mood disturbances and depressive symptoms are among the most commonly reported issues in individuals with T1D. Moreover, incorporating stress management components into reading-based intervention programs may further enhance their efficacy for this population. The inclusion and evaluation of such features should be prioritized in future research. Lastly, to better understand the comparative effectiveness of various approaches, meta-analyses examining occupational therapy interventions—both psychosocial and occupation-based—are strongly recommended. These analyses will help refine therapeutic strategies and reinforce the evidence base for occupational therapy in diabetes care.

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