Benefits of Hybrid Accelerated Education: A Systematic Review

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Abstract

Importance: As educational institutions increasingly integrate hybrid and virtual learning models, it is critical to evaluate their impact on student outcomes in occupational therapy and related health professions education.

Objective: To identify, evaluate, and synthesize the current literature concerning hybrid and virtual education models to determine the efficacy of academic performance, student satisfaction, and professional skill development outcomes.

Data Sources: A literature search occurred between May 9th, 2025 and May 16th, 2025. Follow up searches were conducted on May 23rd, 2025. Databases included AJOT, CINAHL, ERIC, PubMed, ProQuest, and EBSCO using Hawai'i Pacific University's online library databases. Search terms included hybrid education, virtual learning, occupational therapy education, health professions, student outcomes, professional development, as well as combinations of these terms.

Study Selection and Data Collection: This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Published studies on hybrid or virtual learning in health professions education were included in the systematic review. Data from presentations, non-peer reviewed literature, and dissertations were excluded.

Findings: Five studies were included (one level II, two level III, and two level IV) according to the American Occupational Therapy Association's Levels of Evidence. The outcomes of these studies indicate that hybrid and virtual education models can support academic performance,

promote student satisfaction, and foster professional skill development, though in-person models may enhance communication-related skills.

Conclusion and Relevance: Hybrid and virtual education may be effective and improve learning outcomes, satisfaction, and professional growth among occupational therapy and health professions students. These delivery models offer flexibility without compromising educational quality.

What This Systematic Review Adds: There are limited high quality studies that evaluate the impact of hybrid and virtual learning in health professions education. This systematic review provides a starting point for evaluating the efficacy of these models in OT practice. More research is needed to assess long-term professional competencies and to develop best practices for online and blended learning formats.

Key words: Academic performance, blended learning, distance education, health professions, hybrid education, occupational therapy education, online learning, professional development, student outcomes, virtual learning.

The demand for occupational therapy services in the United States is projected to increase significantly in the coming years, driven by an aging population, rising rates of chronic conditions, and the growing recognition of occupational therapy's role in holistic health care (U.S. Bureau of Labor Statistics, 2024). In response to this growing need, educational institutions have begun to explore innovative formats to prepare future practitioners more efficiently and accessibly. Hybrid accelerated programs, which combine online coursework with periodic in-person instruction, are emerging as a promising model to meet these educational demands while offering students greater flexibility and access to training. These programs are particularly appealing to non-traditional learners, such as working adults, caregivers, and students from geographically underserved regions, who may face barriers to attending traditional, on-campus programs (Swan et al., 2019).

Despite the increasing prevalence of hybrid programs across health professions education, there remains a limited body of research specifically evaluating their efficacy within occupational therapy doctoral education. Prior research in related fields such as nursing, dentistry, and physical therapy has shown that hybrid learning can achieve comparable academic outcomes to traditional formats while also enhancing student satisfaction, engagement, and accessibility (Kumar & Dawson, 2021; Bowers et al., 2022; Wang et al., 2022). However, concerns persist about whether hybrid formats provide sufficient hands-on training and professional development, which are critical components of clinical preparation in occupational therapy. A systematic review of existing studies is therefore essential to evaluate the effectiveness of hybrid accelerated education in meeting academic, professional, and experiential learning outcomes for students in doctoral entry-level occupational therapy programs.

Method

The systematic review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and incorporated recommended processes for conducting a systematic review. The guiding research question for this systematic review was: What is the efficacy of hybrid accelerated programs in supporting academic performance, student satisfaction, and professional skill development in Occupational Therapy Doctorate (OTD) students?

A broad search of the literature occurred between May 9th, 2025 and May 16th, 2025. An additional search was conducted on May 23rd, 2025 to ensure all relevant research was included. The inclusion criteria for studies in this systematic review were as follows: peer-reviewed, published in English, and dated between 2015-2025. Exclusion criteria, in addition to those studies that did not meet the inclusion criteria, included articles that were systematic reviews, scoping reviews, dissertations, and presentations. A search for relevant literature was completed using electronic databases: CINAHL (Cumulative Index to Nursing and Allied Health Literature), PubMed, ERIC (Education Resources Information Center), Scopus, ProQuest Dissertations & Theses, and PsycINFO through Hawai'i Pacific University's online library database and a direct search of the American Journal of Occupational Therapy (AJOT). Search terms included "Occupational Therapy Doctorate" OR "OTD", "Hybrid learning" OR "blended learning", "Accelerated program", "Health professions education", and "Graduate education" as well as combinations of these terms. Appendix A provides an extensive list of all search terms used for this systematic review. The initial search included 12 articles related to the research topic (Figure 1). Four independent reviewers completed the screening and selection of the studies, assessed their quality, and extracted the data.

Figure 1

PRISMA Flow Diagram
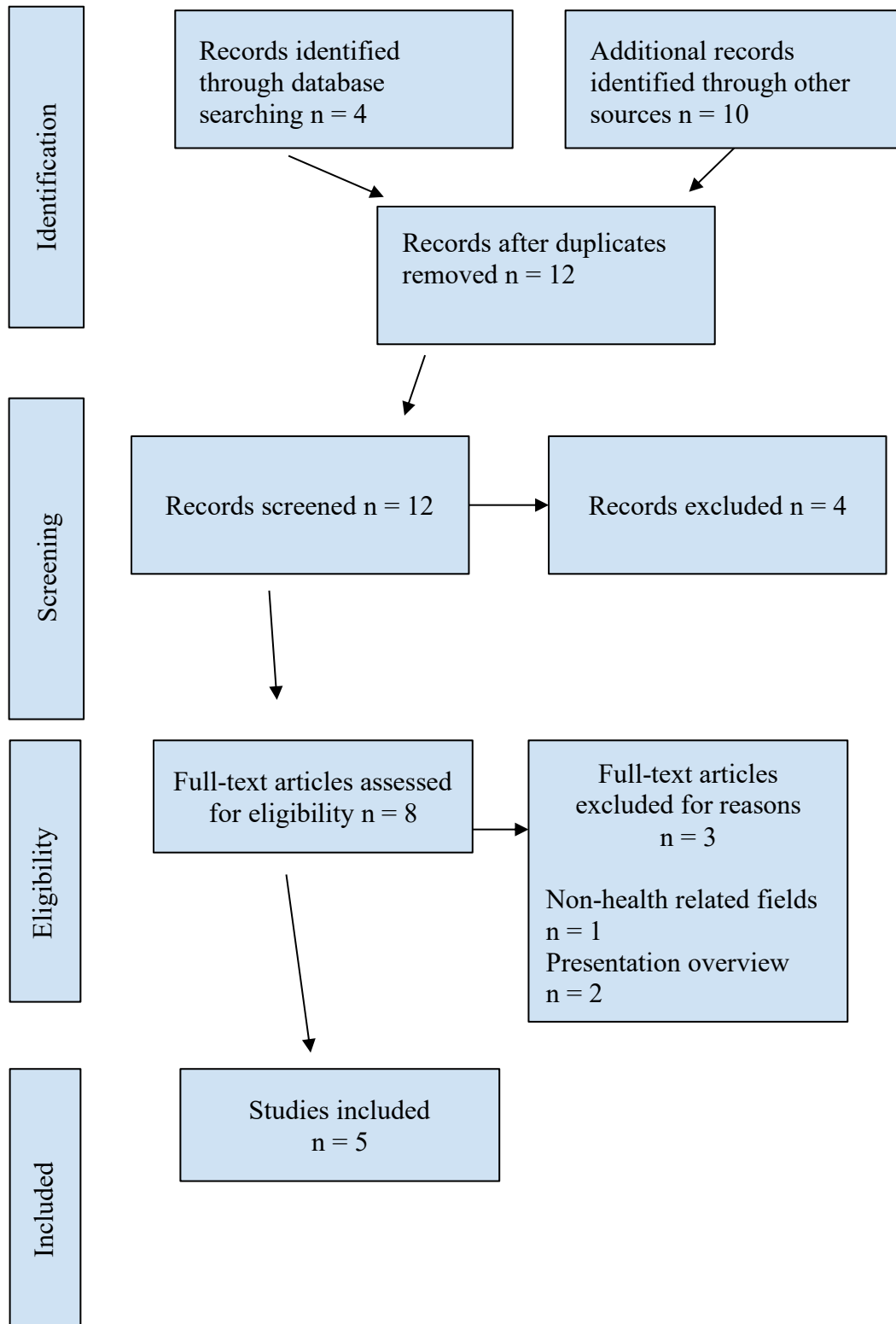
Results

This systematic review included five studies that contained relevant information regarding the benefits of a hybrid accelerated program for OTD students. Five studies met the inclusion criteria: one Level II study, two Level III studies, and two Level IV studies. The articles were assessed according to their risk of bias, level of evidence, and quality. The information from these articles was divided into three themes: (1) Student Performance and Academic Outcomes, (2) Student Preferences, and (3) Development of Professional Characteristics. An evidence table is provided in Appendix B. The Cochrane risk-of-bias guidelines were used to assess each article and are provided in Appendix C.

Student Performance and Academic Outcomes

All five studies in the review discussed student performance within the hybrid or online delivery models in graduate and professional education. One study was a Level II, two studies were Level III, and two studies were Level IV (see Appendix B). All five studies provided evidence that hybrid and online learning formats are effective and potentially beneficial in promoting comparable or improved academic outcomes, enhanced student engagement, and increased access to education.

Wang et al. (2022) used a mixed-method design to investigate an accredited hybrid Juris Doctor degree program (i.e., law school). The results of this study showed that hybrid students had a comparable academic outcome and engagement levels to those in traditional in-person programs, even after controlling for prior academic performance. Key strengths of this study included the use of validated surveys (Law School Survey of Student Engagement), common assessments, and instructor interviews to measure the community of inquiry factors like cognitive and social presence.

Zhu and Kumar (2023) analyzed 13 highly rated online and hybrid EdD programs in Educational Technology. The study identified common features such as cohort models, flexible formats, and a focus on professional outcomes. The programs varied in structure but consistently aimed to support professionals through applied research, capstone projects, and community building strategies. Key takeaways from this study included the importance of alignment between the goals and delivery format, and the successful integration of online modalities to support doctoral persistence.

In the Bowers et al. (2022) study on dental education, hybrid and online formats were implemented during an operative dentistry course. Students in hybrid sections performed equally as well in practical assessments in comparison to those in traditional school formats. This study demonstrated that hybrid delivery could maintain academic rigor while offering great flexibility in instruction.

Miller et al. (2018) conducted a quantitative comparison of traditional versus hybrid students in an OT program and revealed no statistically significant differences in GPA or NBCOT pass rates. This study reinforced the efficacy of hybrid instruction. Students in the hybrid cohort reported higher self-efficacy and satisfaction with academic support and work-life balance.

Mu et al. (2014) evaluated the hybrid instructional delivery in graduate medical education and highlighted comparable student academic performance between hybrid and traditional models. Hybrid students expressed higher satisfaction with flexibility, although some reported challenges with time management and perceived peer connections.

Limitations of the studies on student performance and academic outcomes included the fact that one of the studies relied heavily on publicly available data and had limited direct survey

responses, which may limit generalizability (Zhu & Kumar, 2023). In Wang et al. (2022), while the hybrid program demonstrated positive outcomes, the study was limited to only one institution, which impacts external validity. Additionally, Bowers et al. (2022) noted challenges in determining causation due to potential confounding variables such as variations in instructor teaching style and student baseline characteristics. Finally, self-reported bias and limited longitudinal data were concerns in Miller et al. (2018) and Mu et al. (2014), both of which emphasized short-term outcomes over long-term professional competencies.

Student Preferences

Two of the five studies directly examined student perceptions and preferences regarding virtual and hybrid learning. One of these studies was Level II, and one was Level III (see Appendix B). Both studies reported that students generally perceived hybrid and virtual formats as accessible and flexible but noted challenges with engagement and focus.

Bowers et al. (2022) conducted a cross-sectional survey with dental students to assess their experiences with virtual versus in-person didactic education. Students expressed a strong preference for virtual learning, particularly valuing its convenience and adaptability. However, they also noted increased distractions, reduced motivation, and difficulty maintaining focus during online sessions. Despite these drawbacks, many students felt more comfortable in a virtual setting and advocated for continued inclusion of hybrid options in the curriculum.

Finlay et al. (2021) surveyed undergraduate students in sports and exercise science programs, comparing their experiences across different instructional modalities. Students in blended learning environments rated academic support, program organization, learning resources, and community involvement significantly higher than those in virtual-only formats ($p \leq 0.05$). These findings support the notion that the inclusion of in-person components enhances

the perceived quality of hybrid learning. The study offers valuable implications for program design but is limited by its focus on undergraduate learners and a specific field, reducing applicability to graduate health professions education.

Limitations in this theme included the use of convenience samples (Bowers et al., 2022; Finley et al., 2021), moderate risk of bias due to self-reported survey methods, and potential recall bias. Both studies had limited generalizability due to specific student populations and institutional settings.

Development of Professional Characteristics

Two of the five studies addressed the development of professional characteristics in hybrid and traditional learning environments. One study was Level IV and one study was a Level III (see Appendix B). These studies provided evidence that hybrid models are effective in promoting development of skills such as communication, leadership, and self-awareness.

Miller et al. (2021) compared professional skill development among OTD students in hybrid and traditional tracks. Traditional students scored significantly higher in listening skills (p = 0.024) and assertive communication (p = 0.003), while no differences were found in other domains like teamwork, time management, or leadership. Both models supported the development of professional competencies.

Zhu and Kumar (2023) also emphasized leadership and communication skills in online EdD programs, noting that most programs included coursework in leadership, diversity, and applied research skills. Programs emphasized outcomes like the ability to apply theory in real-world leadership contexts.

Limitations in the studies in this theme include moderate risk of bias due to overlapping roles of participants (Miller et al., 2021), limited sample sizes, and lack of standardized measures

to assess professional characteristics (Zhu & Kumar, 2023). Additionally, self-reported survey data introduced subjective variability.

Discussion

The results of this systematic review suggest that hybrid accelerated programs are effective in education delivery and improving academic outcomes, student satisfaction, and professional skill development for OTD students. All five studies reviewed reported that students in hybrid or online programs pursuing degrees in medicine, dentistry, education, law, and occupational therapy performed equal to or better than their peers in traditional educational settings, though no significant differences in GPA or certification pass rates were observed (Miller et al., 2018; Mu et al., 2014; Wang et al., 2022). These findings support the academic validity of hybrid accelerated programs in doctorate occupational therapy education.

Students reported high levels of satisfaction with the flexibility and convenience of a hybrid format, which contributed to improved work-life balance and access to education (Bowers et al.,2022; Finley et al., 2021). However, some challenges were noted including decreased motivation and difficulty maintaining focus in fully virtual settings (Bowers et al., 2022), indicating that thoughtful instructional designs are necessary to maintain student engagement.

Additionally, hybrid models were shown to support the development of professional skills such as leadership, communication, and self-awareness. While it was reported that students in traditional learning settings sometimes scored higher in interpersonal skills like assertive communication, both formats were successful in fostering professional development within the students that will be essential for becoming healthcare practitioners (Miller et al., 2018; Zhu & Kumar., 2023). Further research is needed to further understand the academic and professional development of OTD students in hybrid learning.

Strengths and Limitations

A key strength of this systematic review was the use of the PRISMA guidelines to be transparent in the selection process and the quality of the articles included in the review (Figure 1). There were four reviewers which kept the article screening and extraction consistent. This enhanced reliability of the findings and minimized selection bias. Additionally, the use of an evidence table provided a structured analysis of the different studies.

However, several limitations should be acknowledged. The number of articles eligible was small and many were single institution designs and self-reported data, which could lower the generalizability of the findings. Some other relevant articles could have been missed due to database limitations or the search criteria. Also, the grouping of studies into themes did introduce subjectivity. The variability in the study designs and outcome measures limited direct comparisons across studies.

Implications for Occupational Therapy Practice

As hybrid accelerated education becomes more prevalent, occupational therapy educators and institutions must consider how these evolving models impact the development of competent, compassionate, and clinically prepared practitioners. This review supports that hybrid learning can meet core educational goals without sacrificing quality, which has several key implications for OT practice.

- Increased accessibility and diversity
  - Hybrid programs create opportunities for non-traditional students, including working adults, caregivers, and those in rural or underserved areas, to pursue OT education. This could potentially lead to a more diverse and representative workforce.

- Flexible learning without compromising outcomes

  - Findings suggest that hybrid education supports academic success and professional development that is comparable to traditional programs, allowing students to better balance personal responsibilities while preparing for OT practice.

- Emphasis on professional skills development

  - Both hybrid and traditional programs foster critical skills such as leadership and self-awareness; however, programs may need to integrate targeted strategies to strengthen communication skills in hybrid settings.

- Curriculum design and faculty training

  - OT programs should prioritize intentional curriculum design that leverages the strength of hybrid learning, such as asynchronous content for foundational knowledge and in-person components for hands-on practice and communication skill building.

- Need for further research and outcome tracking

  - As the profession continues to embrace flexible education formats, future studies should examine long-term clinical competencies, fieldwork readiness, and post-graduation outcomes to ensure graduates are well prepared for practice.

Conclusion

Studies included within this systematic review provide evidence on the effectiveness of hybrid accelerated programs in supporting academic performance, student satisfaction, and professional skill development in OTD students. Evidence suggests that hybrid accelerated programs offer meaningful benefits for OTD students. The combination of academic rigor and

flexible schedules meets the educational needs of today's occupational therapy learners. Additional research is necessary to explore long-term outcomes, hands-on skill acquisition, and clinical readiness in hybrid learning environments. Hybrid OTD programs appear to be a viable and flexible educational model that can meet the evolving needs of today's occupational therapy students.

References

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Appendix A

Search Terms

Occupational Therapy Doctorate OR OTD

AND

Hybrid learning OR blended learning

AND

Accelerated program

AND

Health professions education OR Graduate education

Appendix B

Evidence Table

Author/ Year	Level of Evidence Study Design Risk of Bias	Participants Inclusion Criteria Study Setting	Intervention and Control Groups	Outcome Measures	Results
Bowers et al. (2022)	Level 2 Cross-sectional Survey Risk of bias: Moderate	Fourth year predoctoral dental students in graduating class of 2020 University of Iowa	Intervention: Electronic survey and virtual learning Control group: In-person didactic seminars	Retention and comfort with virtual vs in-person learning Motivation and mental focus in both formats Access to resources and interaction with faculty and peers	34 of 80 dental students (42.5%) completed the electronic survey Students felt comfort with virtual learning Increased distractions and multitasking were reported with virtual learning Students preferred to have all teaching via virtual learning platforms
Finlay et al. (2021)	Level 3 Cross-sectional survey Risk of bias: Moderate	Virtual students- 81 Blended students- 62 Level 1 and 2 undergraduate students enrolled in sports and exercise science programs in the UK. Online self-administered survey	Intervention- students in the blended learning approach during COVID-19 guidelines. Laboratory and sport-based activities were in-person. Control- Students doing online only approach, no hands-on time at all.	Teaching courses, learning opportunities, assessment and feedback, academic support, organization and management, learning resources, learning community, student voice, COVID-19-specific	Students overall reported significantly ($p \leq 0.05$) higher scores for academic support, organisation and management, learning resources, learning community and student voice for the blended learning approach, as compared to the virtual learning approach.

			Each phase was one academic year of instruction, with semester-based coursework.		
Miller et al. (2021)	Level 4 Mixed-methods design with comparative analysis Exploratory sequential mixed-methods study Moderate risk of bias due to small sample size, low survey response rate, and overlapping roles of participants	First, second-, and third-year students enrolled in a traditional or hybrid-entry level OTD program Creighton University, entry level OTD program	No intervention or control groups Comparison of groups based on delivery model, not treatment	Development of professional characteristics like teamwork, communication, time management, self-awareness, leadership, critical thinking Measured through qualitative themes and survey with Likert-scale responses	Significant differences found in the development of listening skills (p = .024) and assertive communication (p = .003), favoring traditional students No significant differences in other domains (teamwork, leadership, time management, self-awareness) Both pathways supported the development of professional characteristics
Mu et al. (2014)	Level 3 Retrospective comparative study Low risk of bias	Entry-level Doctor of Occupational Therapy Students who graduated in 2011 and 2012 from either the tradition on-campus or hybrid programs at a private Midwestern university.	13 students enrolled in the hybrid OTD program, Control group was 81 students enrolled in the traditional on-campus OTD program.	Annual average GPA, FWPE, NBCOT practice exam scores, Final NBCOT certification exam pass rates.	No significant differences were found between the on-campus and hybrid cohorts in cumulative GPA, FWPE, NBCOT scores. Significant differences were observed in GPAs at the end of second and third year. In person it was higher than hybrid.

| Zhu & Kumar (2023) | Level 4 Descriptive, non-experimental Descriptive analysis using website review and survey data Moderate due to limited survey responses (6 out of 13 programs responded) and dependent on publicly available website data | Online & hybrid EdD programs in Educational Technology ranked in the top 10 of at least one of the three major ranking websites in 2021 U.S. based programs National study using program websites and surveys of EdD program coordinators | Distributed survey to the 13 online and hybrid EdD programs. Collected information about program goals, outcomes, and support structures for dissertation development. Survey used to supplement and verify website information of programs. | Program structure - length, delivery model, cohort-based or not Curriculum content - core courses, research courses, specialization Dissertation process and advising Stated professional & learning outcomes for students | 13 highly ranked programs were reviewed Most were cohort based and fully online All included core and research courses plus dissertation credits Programs emphasized leadership, professional application of research, and preparation for roles in K-12, higher education, and corporate sectors Common course themes included learning theory, instructional design, leadership, diversity, and applied research methods |

Note. Acronyms used:
- Doctor of Occupational Therapy (OTD)
- Medical students (MSII)
- Interprofessional education (IPE)
- National Board for Certification in Occupational Therapy (NBCOT)
- Fieldwork Performance Evaluation Tool (FWPE)
- Occupational Therapy (OT)
- Grade Point Average (GPA)
- Doctor of Education (EdD)

Appendix C

Risk-of-Bias Table

Risk-of-Bias Table for Randomized Controlled Trial (RCT) and Non-RCT (Two or More Group Design)									
	Selection Bias (Risk of bias arising from randomization process)			Performance Bias (effect of assignment to intervention)		Detection Bias		Attrition Bias	Reporting Bias	Overall risk-of-bias (low, moderate, high
Citation	Random Sequence Generation	Allocation Concealment (until participants enrolled and assigned)	Baseline difference between intervention groups	Blinding of Participants During the Trial	Blinding of Study Personnel During the Trial	Blinding of Outcome Assessment: Self-reported outcomes	Blinding of Outcome Assessment: Objective Outcomes (assessors aware of intervention received?)	Incomplete Outcome Data (data for all or nearly all participants	Selective Reporting (results being reported selected on the basis of the results?)	
Miller et al. (2021)	?	?	?	+	+	?	?	+	-	**Low**
Mu et al. (2014)	?	?	-	-	-	?	+	+	+	**Low**

Note. Categories for risk of bias are as follows: Low risk of bias (+), unclear risk of bias (?), high risk of bias (–). Scoring for overall risk of bias assessment is as follows: 0–3 minuses, low risk of bias (L); 4–6 minuses, moderate risk of bias (M); 7–9 minuses, high risk of bias (H).

Citation. Table format adapted from Higgins, J. P. T., Sterne, J. A. C., Savović, J., Page, M. J., Hróbjartsson, A., Boutron, I., . . . Eldridge, S. (2016). A revised tool for assessing risk of bias in randomized trials. *Cochrane Database of Systematic Reviews 2016, 10*(Suppl. 1), 29–31. https://doi.org//10.1002/14651858.CD20160

Risk of Bias for <mark>Before-After (Pre-Post) Studies with No Control Group</mark> (One Group Design)

Citation	Study question or objective clear	Eligibility or selection criteria clearly described	Participants representative of real-world patients	All eligible participants enrolled	Sample size appropriate for confidence in findings	Intervention clearly described and delivered consistently	Outcome measures pre-specified, defined, valid/reliable, and assessed consistently	Assessors blinded to participant exposure to intervention	Loss to follow-up after baseline 20% or less	Statistical methods examine changes in outcome measures from before to after intervention	Outcome measures were collected multiple times before and after intervention	Overall risk of bias assessment (low, moderate, high risk)
Bowers et al. (2022)	Y	Y	N	N	Y	Y	Y	N	N	N	N	**Moderate**

Study												Overall
Mitchell et al. (2021)	Y	Y	Y	N	Y	NR	N	NR	NR	N	N	**Moderate**
Zhu & Kumar (2023)	Y	Y	NR	Y	Y	NR	Y	NR	NR	N	N	**Low**

Note. Y = yes; N = no; NR = not reported. Scoring for overall risk of bias assessment is as follows: 0–3 N, Low risk of bias (L); 4–8 N, moderate risk of bias (M); 9–11 N, High risk of bias (H).

Interpretation. Table format adapted from National Heart Lung and Blood Institute. (2014). Quality assessment tool for before–after re–post) studies with no control group. Retrieved from https://www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools