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Prevalence of Depression in Physical Therapy Environments for Young Adult Populations in the
U.S.: A Systematic Literature Review

An honors thesis submitted in partial fulfillment of the requirements for honors in the
Water's College of Health Professions

By

Audrey N. Baucom

Under the mentorship of Jacquelyn Mesenbrink

ABSTRACT

Objective: This systematic review aimed to examine interactions of depression symptoms and diagnoses and its prevalence in physical therapy settings among the young adult population ages 18-24 in the United States through current literature and to identify existing literature. **Methods:** This review followed the PRISMA guidelines to form a systematic review. Ten databases were extensively searched. Results were screened by one researcher and those that met the criteria were verified as inclusive by a second researcher. **Results:** The search yielded 3,017 results and included two studies. In each study, age was not identified as a prevalent variable in mental health diagnoses related to injury. However, both included studies examined the psychological effects of injury relevant to their specified populations and recommendations for both screening and treatment, a key goal of this review. **Future Direction:** Assessment of included studies yielded similarities in questioning how injury affects the human psyche, what actions are being taken to mitigate these incidents, and what future methods can be put into practice. These aspects highlight a growing occurrence of mental health diagnoses related to injury. A gap in the literature related to mental health in young adults was recognized in physical therapy settings. Future studies that focus on young adult populations in the United States are necessary to address this gap.

Thesis Mentor: Dr. Jacquelyn Mesenbrink

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Introduction

Compared to all age groups, young adults face the most concerning prevalence of mental health diagnoses and depressive episodes (KFF, 2023). Young adults are defined by the U.S. Census Bureau ages 18 through 24 (U.S. Census, 2023). The rate of mental health diagnoses among this population is 33.7%, surpassing that of other age groups (NIMH, 2023b). Further, 10.9% of young adults reported experiencing depressive episodes within the past year (SAMHSA, 2016).

While young adults experience a significant rate of depression occurrences when compared to other age groups, there is a lack of mental health service utilization (Babajide et al., 2020). This indicates a need for screening in other healthcare settings to identify cases in which intervention is necessary (Babajide et al., 2020). Additional healthcare domains, specifically those not specialized in mental health screening and treatment, can be assigned the responsibility of recognizing when patients may benefit from supplementary services. Physical therapy, a sector of healthcare traditionally dedicated to the physical rehabilitation of patients, often involves interactions with patients experiencing mental health symptoms and diagnoses which can be employed to recognize cases in which further intervention is necessary (APTA, 2020). Throughout this review, interchangeable terminology between depression and diagnoses and symptoms, which is also referred to at times under the larger umbrella of mental health diagnoses, is utilized.

This systematic review aimed to contribute to a research area that has been significantly underrepresented in the field of physical therapy. Gaining insight into how depression manifests in physical therapy can enhance therapists' abilities to identify signs and symptoms of mental health diagnoses enabling physical therapists to offer appropriate referrals to mental health

experts and ensuring that patients receive essential services as needed. By systematically reviewing the literature in this field, a summary of the best available evidence can be created to improve accessibility for those involved in research and healthcare settings to promote evidence-based practice.

Background

Mental Health Diagnoses and Healthcare

In the healthcare environment, there exists a substantial overlap between the mental and physical health of patients. Physical health and mental health influence one another in such a way that if one aspect is deficient, the other is as well (APA, 2014). Mental health diagnoses can result in negative health practices and lifestyles that impact physical well-being (APA, 2014). Likewise, physical health status can affect mental well-being as illness, injuries, and other adverse health events can manifest feelings of stress, anxiety, and even depression (Morrow, 2023). In all aspects of healthcare, it is important to recognize various factors that contribute to the wellness of patients. It is especially crucial to identify barriers, in physical therapy, that can prevent improvement in function, mobility, and overall quality of life (Heywood et al., 2022).

Role of Physical Therapists in Depression Diagnoses

The American Physical Therapy Association (APTA) released its position on the role of the physical therapist in the mental health and behavioral health fields (2020). The organization emphasized the interdependence of physical health, mental health, and behavioral health for the maintenance of overall health and clarified the scope of the practicing physical therapist, highlighting a need for screening, referrals, and collaboration with mental and behavioral health providers (APTA, 2020). This position further maintains the idea that interactions between mental health diagnoses and physical health are a common occurrence and are especially

relevant in the healthcare environment. Depression diagnoses and symptoms are often concurrent with conditions that require physical therapy procedures (Thompson, 2014).

Pain can be associated with acute injuries or chronic conditions and is a contributing factor to depression onset in patients who encounter pain, especially when it interferes with day-to-day lifestyles (Thompson, 2014). Oftentimes, patients are individuals who work, socialize, exercise, and participate in a variety of other physical activities. When an injury occurs, participation in these activities ceases, which can lead to increased chances of developing feelings of discouragement, sadness, and loss of interest in life, hallmark signs of depression onset (NIMH, 2023a).

Nonetheless, it is crucial to acknowledge that depression may stem not only from injuries but also from genetic predispositions, psychological factors, and environmental influences (NIMH, 2023a). It is necessary to understand this broader context because individuals experiencing depression symptoms may be less inclined to engage in physical activities, leading to significant health implications. Therefore, it becomes imperative to identify signs of depression in physical therapy settings to address potential consequences effectively (NIMH, 2023a).

Depression Diagnoses and Young Adults

The prevalence of mental health diagnoses is notably higher among young adults when compared to other age groups (Babajide et al., 2020). This age group is also particularly susceptible to depressive episodes, which are defined as when an individual experiences a depressed mood, marked by feelings of sadness or emptiness when compared to other age groups (WHO, 2023; Babajide et al., 2020). While these statistics detail the alarming rates at which young adults are affected by mental health diagnoses, there is little research that focuses solely

on this specific population. Typically, young adults are often grouped as part of all adult populations (Babajide et al., 2020). Additionally, studies that focus on adolescent populations do not typically include subjects beyond the age of 18 (Babajide et al., 2020). This indicates a potential understudied area in the literature. For these reasons, this systematic review intended to focus on young adults ages 18-24 and occurrences of depression to identify gaps in the literature and provide recommendations for practice and research in the future.

Methods

Study Strategy

The guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) were closely followed to complete this systematic review (Page et al., 2021). To gather an adequate understanding of current research on the topics of both physical therapy and clinical depression diagnoses and symptoms, this review searched multiple databases while utilizing specific keywords to identify sources that meet inclusion criteria.

Databases searched included: PubMed (with MEDLINE), MEDLINE with full text (at EBSCOhost), Cochrane Library, CINAHL Complete, Nursing and Allied Health Databases (ProQuest), SportDiscus with full text, Ovid, Health and Medical Collection (ProQuest), Consumer Health Database (ProQuest), and PsycARTICLES. Keywords that were utilized included “depression,” “physical therapy,” “young adult,” “treatment,” “patient,” “diagnosis,” “recovery,” “symptoms,” “intervention,” “professional patient relations,” and “therapeutic alliance.” The Boolean search term utilized was “AND” to ensure that each source included every keyword in the search. Each Boolean search included the terms “depression” AND “physical therapy,” AND “young adult” with the initial search of each database containing those terms only, while subsequent searches contained those terms along with an additional key term

until each term was utilized in the search process, for example, “depression” AND “physical therapy” AND “young adult” AND “treatment.” If available, the filter “young adult” was applied to further narrow results and exclude extraneous populations not within the parameters of this study. The studies were to exclusively involve subjects that fell into the defined age range of young adults, as defined by the U.S. Census age range, described above.

Additionally, the date of publication was set from 2013 to 2023 in each database. The country of publication filter was applied to include only sources that were published in the United States. Searches were conducted from August 20, 2023 to November 27, 2023. Additionally, sources had to have been written in the English language, the language primarily spoken by the researcher. Any source that did not meet inclusion criteria was excluded from this review. Results from each search were cataloged using Google Sheets.

Study Selection

The results from each search were screened by one independent researcher. Automation tools were not utilized. When available, the title and abstract were screened for relevance and eligibility. Results that did not meet eligibility criteria were marked as “not relevant” and excluded from further review. Any results that appeared to initially meet inclusion criteria were sorted into the “further review” category. The results in this category were screened beyond the abstract after initial searches were completed by the same researcher. Results that met the criteria and were relevant were included in the final synthesis process and verified as inclusive by a second researcher.

Synthesis Methods

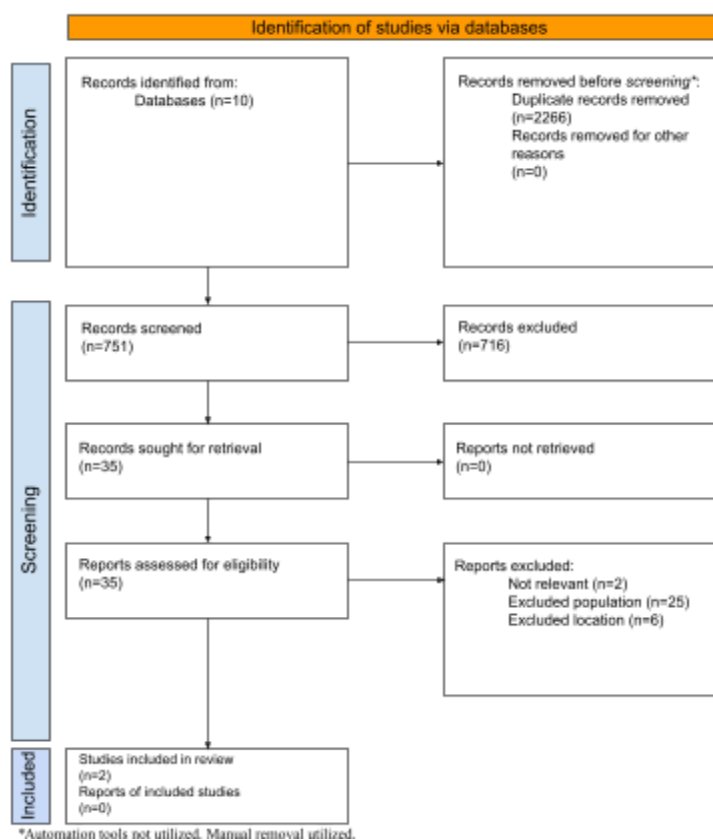
Studies were determined to be eligible for synthesis with the use of categorization. These categories were defined as initial satisfaction of inclusion criteria based on title and abstract,

further satisfaction of inclusion criteria based on narrative, and overall relevance to the central research question. Sources that met each of these categories were synthesized further using CASP and NOS tools and subjectively by the primary and secondary researchers with the central research question guiding the assessment. The overall content of the studies was assessed rather than specific and defined characteristics to maintain inclusivity of variety in format and general goals as these concepts can differ, yet still maintain relevance.

Results

Study Selection

A total of 3,017 records were found in databases during the search process. After the removal of duplicates, 751 records were screened, and 716 were excluded based on the assessment of their titles and abstracts. Thirty-five records were sought for retrieval and assessed for eligibility. Of the 35 records that initially appeared to meet inclusion criteria, two were excluded for irrelevance to the



central question posed by this review, 25 were excluded due to different populations aside from young adults assessed, and six were excluded due to geographic location limitations. Two reports that met all inclusion criteria were synthesized and included in the final review. One was a

longitudinal cohort study and the other article included was a qualitative study.

Results of Individual Studies

Longitudinal Cohort Study (Roiger et al., 2015)

The longitudinal cohort study explicitly focused on the collegiate athlete young adult population and assessed the psychological effects of concussions, specifically instances of depressive symptoms, to determine the prevalence of occurrences (Roiger et al., 2015). Three cohorts were compared, one being participants diagnosed with concussions following activity in their sport, another being participants diagnosed with injuries other than concussions following activity in their sport, and a non-injury control group. The groups were assessed at four different periods: baseline, 1-week, 1-month, and 3-months utilizing a self-report known as the Center for Epidemiological Studies-Depression Scale, a symptom scale for depression (CES-D). A total of 21 participants, ages 18-22 years, were involved in this study.

This study utilized descriptive statistics to measure changes at each time period for each group. These separate group statistics were then compared to each other to quantify any differences as well as any similarities between them. It was determined that all participants had average baseline scores below at-risk determination for clinically diagnosed depression and that no significant differences were present among all groups (Roiger et al., 2015). For the concussion group, scores for depression symptoms significantly increased over baseline at the 1-week point (Roiger et al., 2015). These symptoms peaked at the 1-week point and decreased until the 3-month point (Roiger et al., 2015).

Furthermore, there were no significant differences between the concussed group and the injured/non-concussed group at any of the time points (Roiger et al., 2015). However, while the concussed group scores peaked at 1-week and decreased until the 3-month point, the

injured/non-concussed group peaked at 1-week post-injury and were elevated until the 3-month point at which they decreased (Roiger et al., 2015). Regardless of elevated average scores, these levels remained below the at-risk threshold for diagnosed depression (Roiger et al., 2015).

Two of the 14 participants in the concussed and the injured/non-concussed groups had scores that reached the at-risk threshold at the 1-week point. One participant remained at risk at the 1-month point and the other fell below the threshold at the 1-month point (Roiger et al., 2015). Another participant was below the at-risk threshold at the 1-week point but was scored as at-risk at the 1-month point (Roiger et al., 2015).

Qualitative Study (Weiser et al., 2018)

The qualitative study assessed the feasibility of implementing a psychologically-informed physical therapy (PiPT) program on a U.S. Navy aircraft carrier setting which included a physical therapist and PT technician as trainees (Weiser et al., 2018). Staff were trained in PiPT by a psychologist and physical therapists from the research team two-weeks before being deployed.

A total of three different sessions were conducted during the two weeks before deployment over a series of three days (Weiser et al., 2018). The first session consisted of basic concepts of PiPT defined by the study as “models of pain and disability, predictors of disability and delayed recovery, models of care, and principles of cognitive behavioral pain management” (Weiser et al., 2018). Both the second and third sessions involved skill development, which included yellow flag screening (e.g. maladaptive or abnormal thoughts that can be modified with cognitive-behavior therapy), PiPT patient education, interviewing techniques, and plan of care development related to psychological risk factors. An interactive model, including case studies and role-playing, was developed to focus on skills related to patient education and plan of care

development (Weiser et al., 2018). Once training was completed, staff implemented PiPT and reported back to the research team to both report outcomes and reinforce training. The process of training and further reinforcement took place over a period of nine months.

The qualitative study assessed the results of training physical therapy staff in PiPT by using a guide composed of recommendations from Yates et al. intended for evaluating the quality of psychological trials (2005). This guide outlined the following goals: “knowledge of main PiPT concepts, demonstration of PiPT skills, demonstration of PiPT application, and demonstration of PiPT acceptance” (Weiser et al., 2018, p. 506).

Knowledge of concepts was assessed using a knowledge test that was administered at the conclusion of the training. Demonstration of skills was assessed by scoring the ability of staff to use eight case studies and three role-playing scenarios to screen for yellow flags and describe relevant interventions (Weiser et al., 2018). Demonstration of application was assessed by evaluation of clinical notes that were independently evaluated to assess their quality in reporting yellow flags (Weiser et al., 2018). If necessary information was missing from the documentation, it was relayed to the staff to be corrected in further notes, and this process continued until missing information was no longer present (Weiser et al., 2018). Demonstration of acceptance was assessed utilizing verbal responses from PT staff during video conferences (Weiser et al., 2018.) Teleconferences and email communication occurred throughout the entire period to allow for case presentation and evaluation of how those cases were handled by the PT staff to further reinforce training and provide relevant feedback (Weiser et al., 2018).

Both the physical therapist and the technician passed the knowledge test, composed of true or false questions that covered areas of both standard PT and PiPT, with scores of 100% and 85%, respectively (Weiser et al., 2018). Both members of the staff demonstrated PiPT skills

during case studies and role-playing when assessed with 100% agreement from the trainers (Weiser et al., 2018). Clinical notes were assessed, graded, and returned if necessary until all notes were completed per the standards of the program at the end of deployment (Weiser et al., 2018). Discussions during teleconferences indicated that staff were applying skills appropriately throughout their deployment (Weiser et al., 2018).

Bias Assessment

To assess for bias in each of the studies that were included, the Newcastle-Ottawa Quality Assessment Scale for Cohort Studies (NOS) and the Critical Appraisal Skills Programme (CASP) bias assessment tools were utilized (CASP, 2023; Wells et al., 2021). The NOS tool provides guidelines for assessing aspects of studies in which cohorts are compared, including selection, comparability, outcomes, and exposure (Wells et.al, 2021). While the study specifically assessed using this tool is a comparative and longitudinal observational study, and the tool used to assess the bias is generally utilized for randomized controlled trials, this tool was deemed as best available as it assesses the general basis and foundational aspects of this particular study.

The CASP tool was utilized to assess the risk of bias in the qualitative study included in this review (CASP, 2023). This tool consists of questions that analyze aspects of qualitative studies in the form of a checklist that details if each goal was successfully met by the study. For the bias assessment process, the researcher worked independently to assess each source, and automation tools were not utilized in the process.

Discussion

This systematic review aimed to understand and assess the prevalence of current literature related to depression diagnoses among young adults in a physical therapy setting. When considering the two reviewed articles by Weiser et al. (2018) and Roiger et al. (2015)

together, similar objectives of depression and clinical settings were observed. The studies both emphasized the need to recognize signs and symptoms of psychological conditions. Each detailed how injury can affect the mental health of patients through a description of the patient's perception of injury and the fear-avoidance model. Roiger et al. (2015) specifically focused on depression signs and symptoms after injury. This study had the goal of determining the prevalence of post-injury depression symptoms to sustain the claim that sports-related injuries can have psychologically adverse effects (Roiger et al., 2015). This claim further highlights the importance of screening for psychological signs and symptoms and, when necessary, referral to mental health professionals when the scope exceeds that of athletic trainers.

Weiser et al. (2018) had a more general approach when compared to Roiger et al. (2015) and emphasized the recognition of broad mental health diagnoses after injury. Weiser et al. (2018) had a goal of determining the feasibility of implementing psychologically-informed physical therapy programs to assess the ability of physical therapists to recognize psychologically adverse effects after injury in a military setting to support the claim that psychological factors can predict musculoskeletal injury (MSI) outcomes. Like Roiger et al. (2015), Weiser et al. (2018) emphasized the importance of recognizing psychological signs and symptoms that can result in long-term disability. Among military members, only 28% referred to physical evaluation returned to full duty (Niebuhr et al., 2006). Findings indicated that financial and safety factors due to injury had a long-term impact including the ability to return to duty (Weiser et al., 2018).

It can be assumed that the population of these studies were similar in that college students and deployed military personnel generally consist of young adults, a key population as identified by this review, with 91% of students enrolled at a four-year university being under the age of 25

and 43.5% of active-duty service members being under the age of 25 (Military OneSource, 2023; National Center for Education Statistics, n.d.). Although Weiser et al. (2018) does not explicitly refer to age, the impact of the program is at the forefront of a larger program to impact military members.

Utilizing Screening Tools

Psychological elements of the fear-avoidance model are referred to as “yellow flags” which are defined as “maladaptive thoughts” or other signs of psychological distress that should be screened for so that modification through therapies, such as cognitive-behavioral therapy (CBT), can occur (Weiser et al., 2018). By implementing a program designed to identify these markers, referral to mental health professionals can occur and patient outcomes can be improved (Weiser et al., 2018). In relation to Weiser et al. (2018), Roiger et al. (2015) explained that the use of the CES-D as both a baseline and post-injury screening tool can ensure the best health outcomes related to both physical and psychological rehabilitation after injury when utilized immediately after injury, as well as longitudinally.

Patient-Centered Approaches

Roiger et al. (2015) ascertained that clinicians should utilize patient-centered outcome measures to understand patient perspective related to the level of disability associated with an injury which can determine the level of depressive symptom manifestations. Similarly, Weiser et al. (2018) discussed that contributing fear or perceptions of fear can lead to avoidance behavior and increase the likelihood of further pain and extended recovery time, defining this concept as the fear-avoidance model. The study further explained that by reconceptualizing the perception of injury, physical rehabilitation can progress and recovery can commence (Weiser et al., 2018). Both studies emphasized the importance of understanding patient perceptions and perspectives.

Future Direction

Research outside of inclusion criteria resulted in a source that was similar to the primary goals of this review. Heywood et al. (2022), a systematic review, intended to review interactions between physical therapy and mental illnesses, emphasizing that the treatment of both, when deficient, is necessary for the best outcomes, a theme that was highlighted by this review.

Heywood et al. (2022) assessed five databases and included articles that fit the criteria from the inception of the database until November 2020. Studies could include participants with diagnoses of psychotic disorders, schizophrenia, delusional disorders, mood and affective disorders, somatoform disorders, addictive disorders, sexual disorders, and personality and behavior disorders (Heywood et al., 2022). The study discussed results in sections divided by diagnosis. In the section pertaining to studies that focused on patients with depression diagnoses, eight studies were recognized as inclusive with each having different study goals including, but not limited to, the effectiveness of exercise therapy in improving depression symptoms, attrition in exercise studies among people with depression, and participants with depression diagnoses' experience with physical therapy programs (Heywood et al., 2022).

Heywood et al. (2022) and this review share a commonality between mental health diagnoses and physical therapy interactions. While broader than this review, Heywood et al. (2022) and this review agree that the interaction between these two fields continues to be underdeveloped, and education of physical therapists in psychological aspects is necessary to address this gap. Research pertaining specifically to these fields exists in abundance but is still relatively small when compared to fields in which physical therapists contribute the most, such as general rehabilitation topics (2022).

Further, Heywood et al. (2022) acknowledge that the geography of research with respect

to this field is unequally distributed, with research being published in 25 different countries. This review only considered studies published in the United States, a parameter that highly limited the selection of studies which is supported by Heywood et al. (2022), as the study only included nine studies from the U.S. as compared to other countries, such as the United Kingdom and Sweden, with twenty-eight and twenty-seven studies included, respectively. Finally, certain databases were in common with this review, and these included, MEDLINE, CINAHL, and Cochrane.

This review differs from Heywood et al. (2022) in that this review only focused on depression signs, symptoms, and diagnoses and the prevalence of these occurrences in physical therapy environments, highlighting recognition of signs and symptoms. Heywood et al. (2022) were broad in defining mental illnesses and included several aspects of physical therapy. This review also searched ten databases, compared to five assessed by Heywood et al. (2022). Additionally, this review implemented a geographic and date of publication limitation. Heywood et al. (2022) did not implement these exclusion criteria.

This study intended to determine the existing field of research related to the prevalence of depression in physical therapy environments among young adults. While the studies discussed in this review provided key findings that emphasized the importance of research related to psychological interactions in physical therapy environments, a concept that this review intended to highlight, they were limited in their applicability to the central research question of this review due to population limitations and differences in research goals. Future research recommendations include a sole focus on young adult populations, emphasis on depression, and the prevalence and implication of depression diagnoses within physical therapy environments to determine the prevalence of these diagnoses. It is necessary to determine the prevalence of these occurrences to support the claim that physical therapists should be employed to make referrals as it pertains to

depression diagnoses in this setting.

Limitations

This study is not without limitations. Firstly, quality research related to both interactions of injury and depression symptoms and the implementation of physical therapy programs equipped for psychological evaluation were found to fit inclusion criteria, but each failed to provide the appropriate evidence necessary to supplement the research question. This could have occurred for a variety of reasons. The studies described in this review, Roiger et al. (2015) and Weiser et al. (2018), were limited in their applicability in that their specific populations could not be easily generalized beyond their initial scope. Weiser et al. (2018) were limited by conducting training with only two participants in a unique setting, which demonstrated the feasibility of such a program, but limited its generalizability in other settings and in other populations aside from those that are military-based.

Roiger et al. (2015) were limited in that they only included collegiate athletes from one college campus, and the use of these results for applicability to other collegiate athletes on other campuses may not be appropriate. It further diminishes its generalizability to populations aside from collegiate athletes and settings outside of a college campus (Roiger et al., 2015). It was further limited by potential extraneous variables, including life events or time of the semester that occurred during the study that could have influenced the results of screenings (Roiger et al., 2015). It was emphasized that seasonal stressors related to postseason versus regular season due to the variety of sports measured and the differences in timing for each season may have influenced results (Roiger et al., 2015). Additionally, because matched controls were only assessed at baseline, tracking between injured and non-injured participants could not occur, another limitation to applying these results (Roiger et al., 2015).

Secondly, several sources were excluded based on population characteristics due to a lack of focus on young adults, which limited their applicability when considering the goals of this review. In current research, young adults are often grouped in with adolescents or adults and are not often exclusively studied as an individual group which limits the availability of research that can be applied to this population.

Thirdly, many sources were excluded due to geographical characteristics. This review focused on the United States and excluded sources from other countries. Several sources that were deemed as potentially inclusive based on title and abstract were eventually excluded due to their publication in other countries, which limited the generalizability to populations within the United States. This could potentially be explained for a few reasons, which include health care policy and the level of importance on mental health and mental health research, effects of policy upstream, such as physical therapy and mental health care access and affordability, and other factors that are outside the scope of this review. Access to care and the effects of the policy are areas in which future research is recommended.

Finally, another limitation of studies concerning depression diagnoses in general is that individuals can be genetically predisposed to depression. Thus correlations between injury and depression diagnoses may not always be accurate (NIMH, 2023a). It can be difficult to ensure that depression diagnoses due to extraneous psychological and environmental factors are not included in studies assessing associations between injury and subsequent depression diagnoses. This is a potential limitation to both current and future research.

A potential limitation of this review is the number of researchers involved in database searches. Initial searches were conducted by one researcher; therefore, it is possible that relevant sources were excluded due to potential bias in selection. Additionally, search terms may have

limited results and omitted potentially relevant sources.

Conclusion

This systematic literature review intended to determine the availability and prevalence of research associated with depression diagnoses in physical therapy environments among the young adult population. The findings of this review emphasize that a literature gap exists and that future studies involving the specific population of young adults in physical therapy environments should be conducted to determine the prevalence of depression diagnoses to further aid and support the role of the physical therapist in mental health fields.

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