Tehran University of Medical Sciences

Nursing Practice Today

2025; Volume 12, No 2, pp. 120-131

Review Article

Factors related to depression among transgender women: A systematic review

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ARTICLE INFO

Received 18 January 2024
Accepted 15 March 2025

Available online at:
http://npt.tums.ac.ir

Keywords:
depression;
transgender women;
systematic review

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DOI: 10.18502/npt.v12i2.18335

ABSTRACT

Background & Aim: Transgender women represent a vulnerable population with a high rate of depression. This systematic review aims to identify and analyze the factors associated with depression in this population.

Methods & Materials: The research protocol was registered with PROSPERO. A systematic search was conducted using PubMed, MEDLINE, Scopus, and ProQuest for studies published between 2014 and 2024. Relevant studies focusing on depression and related factors in transgender women were selected. Data extraction focused on identified factors associated with depression. The reporting of this review adhered to PRISMA guidelines, and the quality of included studies was appraised using JBI's critical appraisal tools. A narrative synthesis was conducted to synthesize the findings.

Results: From 2,511 records identified in the database, 14 cross-sectional studies were included in the review. The analysis revealed three primary categories of factors related to depression: demographic, psychological, and sociological factors. Key demographic factors included age and insufficient income, both of which were at increased risk of depression. Psychological factors such as self-stigma and self-esteem were associated with higher depression rates. Sociological factors, including family support, peer support, and violence, were also significant predictors of depression in transgender women.

Conclusion: Depression in transgender women is influenced by a complex interaction of demographic, psychological, and sociological factors. These findings underscore the need for tailored nursing interventions that incorporate mental health support.

Introduction

Transgender is an umbrella term used to describe a group of people in society whose assigned sex at birth differs from their current gender identity (1). In the United States, among the 1.3 million adults who identify as transgender, 38.5% (515,200 individuals) are transgender women (TGW), making them the largest subgroup within this population (2). In Asia and the Pacific, 0.3 % of the adult population is transgender, and it is estimated that 9 - 9.5 million transgender people live in the Asia and Pacific region (3). Moreover, TGW constitutes the largest part of this group (4).

TGW is considered one of the most vulnerable groups in society due to the multiple layers of discrimination and marginalization they often face (5-7). Factors contributing to this vulnerability include stigma, societal rejection, gender-based violence, economic hardship, and limited access to gender-affirming healthcare. These experiences increase the risk of mental health issues, particularly depression (5, 8-11). Depression among TGW is a worldwide problem, as the prevalence of depression among this group in the USA amounts to 62% (11). Meanwhile, the incidence of depression

Please cite this article as: Krongtham P, Thato R, Uthis P. Factors related to depression among transgender women: A systematic review. Nursing Practice Today. 2025; 12(2):120-31.

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among Chinese TGW was found to be at 45.3% (12). In Cambodia, 45.0% of TGW suffer from depression (13). In addition, 58.2% of TGW in Thailand have experienced depression (10).

Depression is characterized by persistent sadness and loss of interest as well as an inability to carry out daily activities for at least two weeks (14). Depression is a common but serious mood disorder that causes severe symptoms, affecting how a person feels, thinks, and handles daily activities such as sleeping, eating, or working (15). People suffering from depression face an increased likelihood of developing diseases such as myocardial infarction, stroke, and peripheral artery disease (16). In the worst-case scenario, depression can lead to committing suicide (17). One in five people affected by depression will not recover fully from the first episode, and for 70–80% of those achieving remission, depression will recur at least once (18, 19). Consequently, depression can increase medical costs nationally and globally (20).

Therefore, the high rate of depression is not surprising among TGW. However, it is important to understand the factors influencing depression in this population. Several recent systematic reviews have explored the factors influencing mental health outcomes within LGBTQ+ populations. For example, Hall (21) conducted a comprehensive review focusing on psychosocial risk and protective factors associated with depression among lesbian, gay, bisexual, and queer (LGBQ) youth. Similarly, Tankersley, Grafsky (22) examined mental health risk and resilience factors among transgender and gender nonconforming (TGNC) youth, highlighting the impact of stigma, discrimination, and social support. While these studies offer valuable insights, they predominantly focus on youth populations and broader LGBQ youth communities, leaving a gap in research dedicated specifically to adult transgender women. Our study addresses this gap by examining the unique demographic, psychological, and sociological factors that contribute to depression in adult transgender women. This narrower focus allows for a deeper understanding of the distinct challenges faced by this group. So, the objective of this systematic review is to review and analyze any factors related to depression among adult TGW. For this reason, an increased understanding of the current situation will aid in the development of effective modes of nursing intervention for depression in TGW.

Methods

The review protocol was registered with PROSPERO (CRD42024460724) and was reported following the Preferred Reporting for Items of Systematic Reviews and Meta-Analyses - PRISMA 2020 (23).

Search strategy

A systematic search was conducted using databases including PubMed, MEDLINE, Scopus, and ProQuest. Relevant studies focusing on depression and related factors in transgender women were selected. The search syntax was formed as follows: ("Transgender population" OR "Transgender people" OR "Transgender individuals" OR "Transgender women" OR "Trans women" OR Transsexuals OR "Transsexual women" OR "Male-to-Female") AND (Depression OR Depressive OR "Depressive symptoms" OR "Major depressive disorder") AND (Factors OR Relationship OR Correlation OR Association OR Determinants OR Predictors).

Eligibility criteria

Publications between 2014 and 2024 that reported primary data were considered for inclusion. Participants were required to self-identify as transgender women. Additionally, their depression status was measured by standardized assessment tools. The inclusion criteria were as follows: 1) studies involved transgender women aged 18 and older; 2) the research objective had to include examining factors influencing depression among transgender women; 3) the research used a quantitative approach with

either a cross-sectional or longitudinal design; and 4) the studies were published in English. Studies that did not meet all the inclusion criteria were excluded. The exclusion criteria were qualitative studies, case studies, literature reviews, expert opinions, non-refereed articles, abstracts, and dissertations.

The selection of studies

The selection of studies was conducted in two phases. In the first phase, all relevant studies were imported into EndNote 20, where duplicates were removed. Each researcher (P.K., R.T., and P.U.) then independently screened titles and abstracts for relevance, applying the inclusion criteria. In the second phase, if a study met the initial criteria, the full text was obtained, and two researchers (P.K. and R.T.) independently reviewed it. If there was disagreement, this was resolved by consensus with a third researcher (P.U.).

Quality assessment

The Joanna Briggs Institute (JBI) Critical Appraisal Checklist for cross-sectional studies (Table 2) was employed to assess potential biases in the study's design and analysis (24). Two reviewers (P.K. and R.T.) independently assessed the study quality, resolving any discrepancies through discussion. If disagreements remained unresolved, a third reviewer (P.U.) provided arbitration. Studies with scores above 70% were classified as high quality, those scoring between 50% and 70% as medium quality, and scores below 50% as low quality (25). JBI's criteria included the following: 1) Were the criteria for inclusion in the sample clearly defined?, 2) Were the study subjects and the setting described in detail?, 3) Was the exposure measured in a valid and reliable way?, 4) Were objective, standard criteria used for measurement of the condition?, 5) Were confounding factors identified?, 6) Were strategies to deal with confounding factors stated?, 7) Were the outcomes measured in a valid and reliable way? and 8) Was appropriate statistical analysis used? (24). All studies meeting the inclusion criteria were retained, regardless of their quality scores, to provide a comprehensive analysis of the available evidence. However, no low-quality studies (below 50%) were included in the final analysis, as none of the assessed studies fell into this category.

Data extraction

Data extraction was performed using an Excel spreadsheet. The first sheet captured study details, including author names, publication year, location, study design, participants, sample size, and measurement of depression. The second sheet focused on the relationship between depression and its associated factors, categorizing significant and non-significant associations into demographic, psychological, and sociological factors. In studies that included both transgender women and transgender men, we extracted and analyzed only the results specific to transgender women. Similarly, in the study that included both transgender women and men who have sex with men, only the data relevant to transgender women were included in our analysis. The extraction was conducted by the first researcher (P.K.), and cross-checked by the second researcher (R.T.), with any disparities resolved through discussion with the third researcher (P.U.).

Data synthesis

After data extraction, the first reviewer (P.K.) analyzed the data to identify factors of depression, which were subsequently validated independently by a second reviewer (R.T.). Disagreements were resolved through consensus with the involvement of a third reviewer (P.U.). A meta-analysis of the data could not be conducted due to the heterogeneity of participants and measurement tools across the included studies. Instead, we conducted a narrative synthesis following The Synthesis without Meta-analysis (SWiM) reporting guideline (26). This approach allowed us to systematically organize and interpret the findings. We compiled and categorized the results according to three domains: demographic, psychological, and sociological

factors. This categorization enabled us to identify common factors influencing depression as well as inconsistencies across studies. A summary chart was developed to present these findings in a structured format, allowing for easier comparison and interpretation of the associations reported in the included studies.

Results

Identification and selection of studies

A total of 2,511 records were identified in the database, and 14 studies were ultimately included. The process of study identification, screening, and selection is summarized in Figure 1.

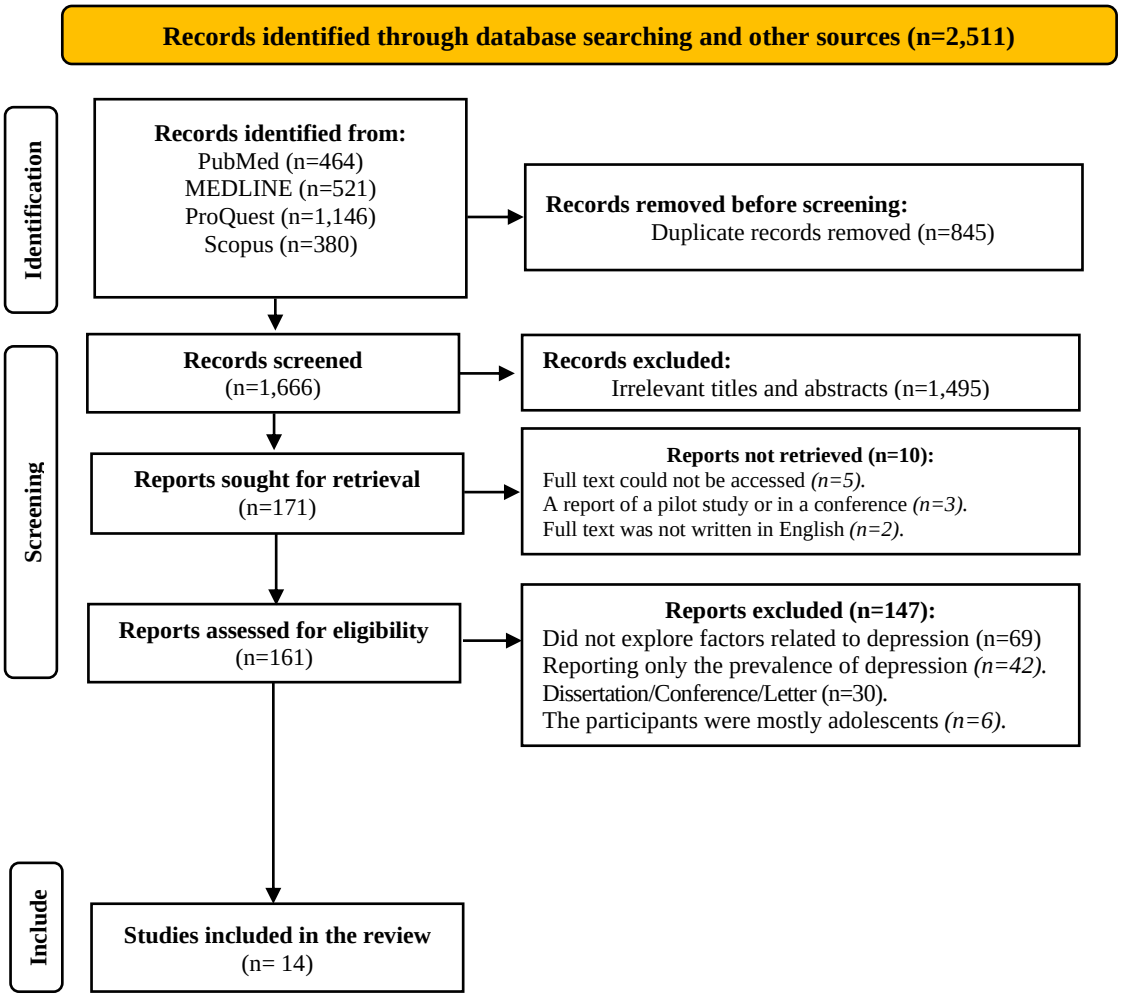

Figure 1. The PRISMA flow diagram of studies included in the systematic review

Characteristics of the included articles

A total of 14 studies were included in this review (Table 1). The studies were from a range of locations, including Brazil, Australia, China, Germany, South Korea, Rwanda, India, Thailand, the United Kingdom, the United States of America, and Cambodia. All these studies were cross-sectional studies. Eight of these studies were conducted solely among transgender women. Meanwhile, five studies included both transgender women and transgender men. Moreover, one study was conducted examining both transgender women and men who have sex with men. The sample size of the studies varied from 38 to 1,375 participants. Measurement of depression was measured variously. Four of these studies were measured by Patient Health Questionnaire-9 (PHQ-9). Moreover, six of these studies were measured by The Center for Epidemiological Studies-Depression Scale (CES-D). Other studies were measured by The Beck Depression Inventory (BDI), The

Hospital Anxiety and Depression Scale (HADS), The two-item Patient Health and Questionnaire-2 (PHQ-2), and The Zung Self-Rating Depression Scale (SDS).

In addition, Table 2 shows the methodological quality assessment of the included studies, with 13 out of 14 categorized as high quality and one classified as medium quality.

Table 1. Characteristics of the included studies

Author (year)	Country	Study design	Participants	Sample size	Measurement of depression
Almeida et al. (2022)	Brazil	A cross-sectional study	Transgender women	864	Patient Health Questionnaire-9 (PHQ-9)
Boza & Nicholson Perry (2014)	Australia	A cross-sectional study	Transgender women and transgender men	243 (160 Transgender women and 83 transgender men)	The Center for Epidemiological Studies-Depression Scale (CES-D)
Chang et al. (2019)	China	A cross-sectional study	Transgender women	198	Patient Health Questionnaire-9 (PHQ-9)
Hajek et al. (2023)	Germany	A cross-sectional study	Transgender people	104	Patient Health Questionnaire-9 (PHQ-9)
Lee et al. (2020)	South Korea	A cross-sectional study	Transgender women and transgender men	207 (130 Transgender women and 77 transgender men)	The Center for Epidemiological Studies-Depression Scale (CES-D)
Luz et al. (2022)	Brazil	A cross-sectional study	Transgender women	489	The Center for Epidemiological Studies-Depression Scale (CES-D)
Okonkwo et al. (2021)	Rwanda	A cross-sectional study	Transgender women and men who have sex with men	736 (106 transgender women and 630 men who have sex with men)	Patient Health Questionnaire-9 (PHQ-9)
Silva et al. (2024)	Brazil	A cross-sectional study	Transgender people	58	The Beck Depression Inventory (BDI)
Srivastava et al. (2023)	India	A cross-sectional study	Transgender women	1,366	The Center for Epidemiological Studies-Depression Scale (CES-D)
Tantirattanakulchai and Hounnaklang (2022)	Thailand	A cross-sectional study	Transgender women	280	The Center for Epidemiological Studies-Depression Scale (CES-D)
Witcomb et al. (2018)	The United Kingdom	A cross-sectional study	Transgender women and transgender men	913 (582 Transgender women and 331 transgender men)	The Hospital Anxiety and Depression Scale (HADS)
Yamanis et al. (2018)	The United States of America	A cross-sectional study	Transgender women	38	The two-item Patient Health Questionnaire-2 (PHQ-2)
Yang et al. (2015)	China	A cross-sectional study	Transgender women	209	The Zung Self-Rating Depression Scale (SDS)
Yi et al. (2018)	Cambodia	A cross-sectional study	Transgender women	1,375	The Center for Epidemiologic Studies Depression scale (CES-D)

Table 2. Risk of bias assessment of each included study (n=14)

Author (year)	Criteria of JBI								Overall appraisal	Quality
	1	2	3	4	5	6	7	8		
Almeida et al. (2022)	Yes	Yes	No	No	Yes	No	Yes	Yes	5/8	Medium
Boza & Nicholson Perry (2014)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	8/8	High
Chang et al. (2019)	Yes	Yes	Yes	Yes	No	No	Yes	Yes	6/8	High
Hajek et al. (2023)	Yes	Yes	Yes	Yes	No	No	Yes	Yes	6/8	High
Lee et al. (2020)	Yes	Yes	Yes	Yes	No	No	Yes	Yes	6/8	High
Luz et al. (2022)	Yes	Yes	Yes	Yes	No	No	Yes	Yes	6/8	High
Okonkwo et al. (2021)	Yes	Yes	Yes	Yes	No	No	Yes	Yes	6/8	High
Silva et al. (2024)	Yes	Yes	Yes	Yes	No	No	Yes	Yes	6/8	High
Srivastava et al. (2023)	Yes	Yes	Yes	Yes	No	No	Yes	Yes	6/8	High
Tantirattanakulchai and Hounnaklang (2022)	Yes	Yes	Yes	Yes	No	No	Yes	Yes	6/8	High
Witcomb et al. (2018)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	8/8	High
Yamanis et al. (2018)	Yes	Yes	Yes	Yes	No	No	Yes	Yes	6/8	High
Yang et al. (2015)	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	7/8	High
Yi et al. (2018)	Yes	Yes	Yes	Yes	No	No	Yes	Yes	6/8	High

Yes low risk of bias; No high risk of bias.

Factors related to depression among transgender women

This systematic review identified a variety of demographic, psychological, and sociological factors associated with depression among transgender women which are summarized in Table 3.

** Demographic factors*

Age: Two studies reported that younger age (<30 years) was negatively associated with depression among TGW (10, 27). In other words, two studies reported that age 30 and older was negatively associated with depression in this group (9, 28).

Education level: Only one study indicated that higher levels of education were significantly more likely to endorse lower levels of depression among TGW (29).

Marital status: One study reported that being single was positively associated with depression among TGW (30). Additionally, another study indicated that being widowed, separated, or divorced was positively associated with depression in this group (31), while one study indicated that being in a committed relationship was negatively associated with depression (29).

Working status: Two studies indicated that being unemployed was negatively associated with depression among TGW (27, 30) and two studies also indicated that being employed was negatively associated with depression among TGW (29, 32). On the other hand, one study reported that unemployment was positively associated with depression (27).

Income: Three studies highlighted that income was negatively associated with depression among TGW (10, 13, 32).

Sex Work: Two studies demonstrated a positive association between involvement in sex work and depression among TGW (33, 34).

** Psychological factors*

Self-stigma: Two studies found that higher levels of self-stigma were associated with a greater prevalence of depression among TGW (28, 35).

Self-esteem: Two studies reported that self-esteem was negatively associated with depression among TGW (9, 29).

Self-efficacy: One study showed that greater self-efficacy was negatively associated with depression among TGW (29).

Perceived social support: Three studies reported that higher levels of perceived social

support were negatively associated with depression among TGW (10, 12, 29).

Resilience: Two studies indicated that resilience was negatively associated with depression among TGW (7, 32).

**** Sociological factors***

Social support: Four studies reported that social support in terms of family support was negatively associated with depression among TGW (9, 10, 33, 34), while four studies also reported that peer support was negatively associated with depression among this group (9, 10, 12, 32).

Discrimination: Three studies demonstrated that discrimination was positively associated with depression among TGW (7, 12, 13).

Violence: Four studies reported that violence in terms of family violence was positively associated with depression among TGW (7, 13, 33, 34).

Interpersonal problems: One study showed that interpersonal problems were positively associated with depression among TGW (9).

Table 3. Factors related to depression among transgender women

Factors/First Author (year)	Almeida (2022)	Boza (2014)	Chang (2019)	Hajek (2023)	Lee (2020)	Luz (2022)	Okonkwo (2021)	Silva (2024)	Srivastava. (2023)	Tantirattanakulchai (2022)	Witcomb (2018)	Yamanis (2018)	Yang (2015)	Yi (2018)
Demographic factors														
Age														
<30				-						-				
≥30							-				-			
Education level		-												
Marital status														
Single								+						
Committed relationship		-												
Widowed, separated, divorced			+											
Working status														
Being unemployed				-				-						
Employed		-										-		
Unemployment				+										
Income										-		-		-
Sex Work	+								+					
Psychological Factors														
Self-stigma					+		+							
Self-esteem			-								-			
Self-efficacy													-	
Perceived social support		-								-			-	
Resilience						-						-		
Sociological Factors														
Social support														
Family	-								-	-	-			
Peer										-	-	-	-	
Discrimination						+							+	+
Violence	+					+		+						+
Interpersonal Problems											+			

(+) Increase the risk of depression; (-) Decrease the risk of depression

Discussion

The findings of this systematic review highlight the complex interplay of demographic, psychological, and sociological factors influencing depression in transgender women. The included studies in this review were geographically diverse, with 14 cross-sectional studies conducted across various countries, offering a broad international perspective. This diversity suggests that the factors influencing depression in transgender women may include both universal and context-specific elements shaped by cultural, social, and economic factors (36). The studies also varied significantly in sample size, ranging from 38 (32) to 1,375 (13) participants, indicating differences in study power and generalizability (37). Additionally, the variety of depression measurement tools used highlights the challenge of consistently capturing depression across different populations and settings (38).

Demographic factors, such as age and income, emerged as consistent predictors, highlighting the importance of addressing socioeconomic disparities within this population (36, 39). Younger TGW, who may face unique stressors during their gender transition, appear particularly vulnerable to depressive symptoms (10, 27). In addition, a younger transgender woman may not have developed the capacities to cope with the stressors of life as transgender (40). Conversely, insufficient income consistently predicted higher rates of depression, reinforcing the importance of addressing socioeconomic disparities (10, 13, 32). The results of this review showed that financial stability is a critical determinant of depression. Regarding marital status, these differences may be explained by the varying levels of emotional and social support provided by different relationship statuses. For example, being in a supportive relationship may offer emotional security and protection against depression (29, 30). In contrast, those who are single or have experienced relationship loss (e.g., through divorce or widowhood) may experience increased loneliness and social isolation, which are known risk factors for depression (31). In terms of working status, these mixed results could be influenced by differing definitions of employment across studies, the quality of employment, or varying levels of financial and social support (29, 32). For some TGW, unemployment could provide relief from workplace discrimination and stress (27, 30), while for others, it might exacerbate feelings of isolation, financial hardship, and lower self-worth, contributing to depressive symptoms (27).

Psychological factors, including self-stigma and low self-esteem, were strongly associated with depression. The higher levels of self-stigma were linked to greater depression, highlighting the detrimental effects of internalized negative attitudes toward one's gender identity (28, 35). Self-esteem also played a critical role, with studies indicating that higher self-esteem was associated with lower depression, suggesting that promoting self-worth is a key target for mental health interventions (9, 29). These findings align with broader research on minority stress, wherein internalized negative attitudes contribute to adverse mental health outcomes (41). Additionally, the role of resilience and perceived social support as protective factors cannot be overstated. Perceived social support is another significant factor, with studies consistently showing that higher levels of social support are associated with lower depression rates (10, 12, 29). This underscores the importance of building strong, supportive social networks for TGW. Resilience is also linked to lower depression (7, 32), suggesting that interventions aimed at enhancing resilience could act as a buffer against depression (42).

Sociological factors, such as family and peer support, emerged as significant protective elements (9, 10, 33, 34), while experiences of discrimination and violence were linked to increased depression (7, 13, 33, 34). These results emphasize the role of social networks and systemic barriers in shaping mental health outcomes for transgender women. Addressing discrimination through policy changes and public education campaigns is imperative for reducing the mental health burden in this population (43).

Our results align with those of Hall (21), who identified psychosocial risk factors for depression among LGBQ youth, including stigma, discrimination, and lack of social support. Similarly, Tankersley, Grafsky (22) highlighted risk and resilience factors for mental health among transgender and gender non-conforming (TGNC) youth, particularly the impact of self-esteem, poor peer relations, and social support.

In contrast, while previous reviews primarily focused on younger populations or broader LGBTQ+ groups, our study specifically addresses adult transgender women, offering unique insights into factors such as self-efficacy, interpersonal problems, and violence. This focus provides a more targeted understanding of depression risk factors within this subgroup, contributing new perspectives to the existing body of literature. These comparisons emphasize the consistency of certain risk factors across diverse populations while highlighting the unique vulnerabilities faced by adult transgender women. This distinction is crucial for developing age-appropriate interventions and support systems for adult transgender women.

Limitation

Even though this systematic review highlights critical factors associated with depression in transgender women, limitations do exist. Most of the included studies were cross-sectional, limiting causal inferences, and our inclusion criteria were limited to English publications from 2014 to 2024, possibly introducing selection bias. Moreover, there was considerable variability in the measurement tools used to assess depression, which may have contributed to differences in findings across studies. In addition, the selected search terms were not MeSH terms, which may have led to the omission of relevant studies. Future research should incorporate a more comprehensive set of MeSH terms to enhance coverage and accuracy. Furthermore, geographic and cultural variability in the study samples necessitates caution when generalizing findings across diverse populations.

Implications

The findings of this review have important implications for clinical practice, public health, and research. In clinical practice, healthcare providers should prioritize mental health screening for transgender women, particularly those with limited income, low social support, or experiences of stigma and discrimination. Tailored interventions that address self-esteem, and resilience could help mitigate depression in this population. Future research should prioritize longitudinal designs to better understand causal relationships and explore culturally tailored interventions. Policymakers and healthcare providers must collaborate to create inclusive environments that support the well-being of transgender women, ensuring access to comprehensive mental health care.

Conclusion

Depression among transgender women is shaped by a multifaceted combination of demographic, psychological, and sociological factors. Addressing the socioeconomic disparities, particularly the challenges faced by younger transgender women and those with lower incomes, is critical in mitigating depression in this population. Psychological factors such as self-stigma and low self-esteem further compound the mental health burden, highlighting the need for interventions that promote self-worth and resilience. Additionally, fostering supportive social networks and addressing discrimination is vital to improving mental health outcomes.

Acknowledgments

This paper is part of the dissertation of Miss Patcharin Krongtham, a Ph.D. student in the Faculty of Nursing at Chulalongkorn University, Thailand entitled “The effect of hybrid CBT-based and peer support program on depression among transgender women”.

Conflict of interest

There is no conflict of interest.

Funding

There is no funding to declare.

Authors' contributions

Patcharin Krongtham: Conceptualization; Methodology; Investigation; Formal analysis; Writing-original draft.

Ratsiri Thato: Conceptualization; Methodology; Investigation; Formal analysis; Writing-review and editing.

Penpaktr Uthis: Conceptualization; Methodology; Investigation; Formal analysis; Supervision; Writing-review and editing.

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