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Shortcomings of transgender identity concealment research: a scoping review of associations with mental health

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ABSTRACT

Background: Empirical research indicates that high rates of mental health issues in members of marginalised population groups are predicted in part by their decisions to disclose or conceal their stigmatized identities from others—a field of study known as *outness* research. Transgender outness research is a nascent branch of this field. It reflects neither the multidimensional view of disclosure and concealment adopted in other branches, nor the ability to address unique aspects of trans outness, such as the practical challenges of concealment and the difference between concealing one's gender identity and concealing one's assigned sex. Consequently, prior literature may not accurately represent the effects of transgender identity disclosure and concealment.

Methods: This scoping review explores the theoretical and operational definitions of trans disclosure and concealment in 46 English-language papers, identified from extensive database searches, addressing relationships between these concepts and mental health factors.

Results: Findings indicate that the issues outlined above remain unresolved, even in the widely-used *nondisclosure* subscale of the *Gender Minority Stress and Resilience Measure*, and are rarely recognized as a potential source of error. Although small detrimental effects of concealment and beneficial effects of disclosure on mental health were reported in the reviewed studies, reliable conclusions about these relationships and their importance to health and safety in the trans community cannot be drawn while these shortcomings are overlooked.

Conclusion: We encourage researchers to address these neglected areas, reevaluate the language used in measurement questions, and conduct longitudinal research to support an accurate understanding of trans outness phenomena.

KEYWORDS

Concealment; disclosure; gender minorities; mental health; minority stress

Identity concealment and the minority stress model

Transgender, nonbinary, and otherwise gender diverse (hereby referred to using the umbrella term "trans") people exhibit depressive symptoms and suicidal behaviors at elevated rates compared to both the general population (Thoma et al., 2019) and cisgender (non-transgender) sexuality diverse people (Srivastava et al., 2021). These disparities are explained by the *minority stress* framework, first developed by Meyer (1995, 2003) and adapted for trans people by Testa et al. (2015), as the consequence of unique stressors experienced regularly by members of stigmatized marginalised groups. While the minority stress model has been criticized for emphasizing interpersonal prejudice over structural stigma (Riggs & Treharne, 2017), it remains the dominant framework for understanding stress processes. It proposes that experiencing *distal* (external) *stressors* such as discrimination and rejection causes an individual to develop *proximal* (internal) *stressors* such as internalized bigotry and negative expectations for the future; the accumulation of both distal and proximal stressors is what damages an individual's psychological wellbeing.

Members of some marginalised groups attempt to avoid distal stressors altogether by concealing their stigmatized identity from others at the cost of isolating themselves from supportive communities and suffering the anxieties and negative emotions generally associated with secrecy (Afifi & Afifi, 2020).

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Identity concealment is thus theorized to play a complicated role in the minority stress model, serving as a proximal stressor while also protecting the individual from distal stressors. For trans individuals, concealment is often motivated by fears of violence and considered a serious, potentially lifesaving matter of personal safety (Rood et al., 2017), and may thus be key to understanding and addressing mental health discrepancies in the population. While there is some evidence supporting the use of the minority stress model in trans populations (Wilson et al., 2023), several studies of trans participants have noted that concealment appears to predict mental health less reliably than other proximal stressors (Puckett et al., 2024; Testa et al., 2017) and have questioned the validity of our present conceptualization of the construct (Helsen et al., 2022; Jones et al., 2022). Despite the relevance of the subject to health and safety in the trans community, pertinent research findings cannot be accepted or interpreted at face value without a consistent, robust framework.

Modeling identity concealment has proven contentious—while the topics of *self-disclosure* and *self-concealment* initially emerged as independent fields of research (Kahn & Hessling, 2001), much of the research in LGBTQ+ and other populations have instead adopted a simplified model wherein disclosure and concealment occupy opposite ends of a single unidimensional continuum (e.g., Kahn & Hessling, 2001; Meidlinger & Hope, 2014). Recently, however, researchers have again begun distinguishing disclosure and concealment as related but distinct concepts (Jackson & Mohr, 2016; Meidlinger & Hope, 2014; Uysal, 2020). In such research, concealment is understood as a deliberate attempt to keep something a secret from another person, involving "active behavioral, cognitive, and emotional effort" (Uysal, 2020, p. 122); in contrast, non-disclosure only denotes that one has not yet explicitly volunteered the information in conversation. A unidimensional model assumes that disclosure and concealment are inversely proportional, but this is not necessarily the case—an individual may refrain from openly disclosing a stigmatized identity without deliberately concealing it (e.g., not telling coworkers about one's sexual orientation purely because it has not come up in conversation) or disclose an identity but continue to conceal details related to it (e.g., coming out as gay to one's unsupportive family, but continuing to hide new relationships or partners from them). Within LGBTQ+ studies using a multidimensional model, the term *outness* can be used as a synonym for disclosure (Jackson & Mohr, 2016) or to describe a composite construct of disclosure and concealment (Meidlinger & Hope, 2014). In the present review, it will be used not in reference to any specific phenomenon, but as an umbrella term for research concepts related to disclosure and concealment. While empirical research suggests that the psychological outcomes of not disclosing an identity and deliberately concealing it are distinct (Camacho et al., 2020; Uysal, 2020), the concepts remain conflated and inconsistently defined in many sexual orientation studies (Pachankis et al., 2020). In trans studies, nondisclosure and concealment are rarely distinguished and often confounded, even in the foremost trans adaptation of the minority stress model (Testa et al., 2015), warranting a critical reexamination of trans outness literature.

Despite bidirectional effects, identity concealment appears to have an ultimately negative influence on mental health in most cases—for instance, a meta-analysis of 193 studies (Pachankis et al., 2020) reported that sexual orientation concealment was associated with increased rates of mental health problems such as depression, anxiety, and psychological distress. This relationship appeared strongest in the most recent studies, which the reviewers interpreted as a sign that the burgeoning social and political acceptance of sexual minorities has rendered any protective effects of concealment less consequential (Pachankis et al., 2020). Efforts to recognize and protect trans rights, on the other hand, remain contentious and lag behind equivalent efforts for cisgender sexual minorities in both politics (e.g., Haider-Markel et al., 2019) and public attitudes (Cunningham & Pickett, 2018; Lewis et al., 2017). Even in recent research, avoiding discrimination appears to motivate life decisions and behavioral changes more frequently in trans people than any other subset of the LGBTQ+ community (e.g., Medina & Mahowald, 2023). It would thus be shortsighted to assume that identity concealment provides no substantial benefit to trans

mental health based on studies of sexual minorities.

An accurate understanding of how identity disclosure and concealment are used by and psychologically affect trans people must be informed by research designed specifically for trans populations, but such research is scarce. The largest meta-analysis of gender minority stress and mental health to date identified just 12 journal articles and eight doctoral theses that had measured the "non-disclosure" factor (Wilson et al., 2023). The research that has been conducted on this topic lacks a separate model of disclosure and concealment, which is rapidly materializing in other branches of outness research. It may be further hindered by unique methodological flaws emerging from applying existing outness frameworks to trans populations and thus warrants additional scrutiny and evaluation.

We identified three key areas in which traditional outness frameworks and tools are likely incompatible with trans populations.

Issue 1: Two distinct forms of trans concealment

The necessity of studies designed specifically for trans participants stems from the risk of conflating a participant's sexuality and trans identity (Dickey et al., 2016). Questions employing broad, ambiguous phrasing such as "LGBTQ identity" or "sexual or gender identity" may confuse participants who belong to more than one marginalised group—for example, a bisexual trans man may not be able to answer the question "how open are you about your sexual or gender identity to others" if he is openly bisexual but closeted about being trans, or vice versa. Research designed for trans participants faces a similar issue: the risk of conflating a participant's current gender identity and assigned sex (Suen et al., 2020)—because trans people, by definition, have a gender identity that does not match the sex they were assigned at birth, they cannot accurately answer a question using the words "sex" and "gender" as synonyms.

This problem is particularly salient in the context of outness research, where concealment of one's gender identity and concealment of one's assigned sex are proposed to represent discrete concealment strategies that are understood to be dissimilar by participants (Rood et al., 2017). For example, a transgender woman may choose to conceal her gender identity and continue to present as male publicly or to present herself to others as female while concealing the fact that she was assigned male at birth. Although both are methods of concealing a trans identity, qualitative research indicates that many trans people consider successfully concealing one's assigned sex to be deeply affirming and healthy (Rood et al., 2017) or even the ultimate goal of gender transition (Gagné et al., 1997). Thus, while gender identity concealment might have a combination of protective and distressing effects not unlike other forms of identity concealment, it is possible that assigned sex concealment represents a unique form of concealment with predominately positive psychological outcomes. By using ambiguous phrases such as "your transgender identity" (e.g., Lindley & Budge, 2022; McKay & Watson, 2020; Wall et al., 2022), researchers risk conflating these two forms of concealment.

Issue 2: Practical requirements of trans concealment

Identity disclosures are not always deliberate or voluntary—one might accidentally reveal their own stigmatized identity or be "outed" by others. The risk of involuntary disclosure is far higher for people with a *visible* stigmatized identity, such as many ethnic minorities and people with physical disabilities. Trans identities are not always, but can be, visible to observers. In an American study of 27,715 trans participants, 47.3% reported that others could "sometimes," "most of the time," or "always" tell that they were trans when they hadn't yet disclosed their identity (Kcomt et al., 2020, p. 3). While literature often conceptualizes outness in terms of decisions faced by participants, a large proportion of trans individuals experience involuntary disclosure and are therefore unable to conceal their trans identity in the first place; studies that have overlooked this may thus not accurately reflect the trans population.

Concealing a trans identity requires the ability to be perceived by others (to "pass" or "blend") as a cisgender man or woman. Because trans people are often judged based on their ability to adhere to the gender binary (Johnson, 2016), an inability

to blend not only impedes concealment but directly contributes to depression, anxiety, and distress for many trans people (Rood et al., 2017; To et al., 2020). Humans tend to make instantaneous judgments about the gender of other people based on discernable characteristics, such as their facial features (Mouchetant-Rostaing et al., 2000) and voice (Latinus & Taylor, 2012); managing these characteristics is thus necessary for successful blending. This is often accomplished over time with the use of gender-affirming procedures, such as hormone therapies, surgical treatments, and voice training regimens. However, the accessibility and affordability of gender-affirming treatments and the age and dosage at which hormones are prescribed varies by clinic and with the patient's geographic location (Holloway et al., 2023; Moore et al., 2003; White Hughto et al., 2016). Patterns of physical gender transitions consequently display significant heterogeneity, and researchers are unable to develop a standardized scale on which to map an individual's transition progress (Thoma et al., 2023). The practical requirements of gender identity concealment and assigned sex concealment may also be in direct conflict—for instance, the effects of hormone treatments (e.g., breast growth from estrogen, facial hair growth from testosterone) can make assigned sex concealment more feasible at the cost of making it increasingly difficult to hide one's transition and gender identity from others (Kim et al., 2023).

Whether gender identity concealment or assigned sex concealment are practical options may thus vary between individuals and within the same individual over time in accordance with a complex network of external factors. Without accounting for these factors, researchers cannot differentiate successful concealment and deliberate disclosures from thwarted attempts at concealment and involuntary disclosures, which may have different effects on an individual's mental health. Prior research findings on trans outness may consequently be flawed and deserve reexamination.

Issue 3: Diversity of transition patterns

Discussions of trans concealment and blending are further complicated by the diversity of identities, and, subsequently, transition goals and milestones (Thoma et al., 2023) held by trans individuals. Some trans people, particularly those who identify as nonbinary (i.e. not simply "male" or "female"), pursue a gender expression incompatible with or deliberately subverting existing gender norms (Marques, 2019). These individuals may consider blending in with cisgender men or women to be invalidating and distressing (Flynn & Smith, 2021) and instead deliberately seek to make their trans identity visible to others (Marques, 2019). This form of expression involves implicit disclosure and, thus, vulnerability to minority stressors. While rejecting or concealing their assigned sex in the process may still be affirming, it would not function to conceal their stigmatized identity or protect them from discrimination. The general public lacks awareness of nonbinary identities (e.g., Taylor et al., 2019), and typically recognizes trans people as legitimate only when they conform to the gender binary and pursue medical transition (Johnson, 2016). Consequently, individuals may struggle to make their nonbinary identity visible and instead rely on explicit disclosure for recognition, which for nonbinary people is often accompanied by the need to explain nonbinary identities and argue their validity (Matsuno et al., 2022). Even within the nonbinary community attitudes may vary; for instance, some nonbinary individuals might be comfortable blending as a particular gender and place less value on disclosure (Marques, 2019; Taube & Mussap, 2022) or may identify as genderfluid or genderqueer and pursue different forms of gender expression on different occasions.

Just as researchers should distinguish between sexual and gender minorities and gender and assigned sex, any robust framework of trans outness must also distinguish binary and nonbinary individuals and recognize that an individual's identity and transition goals will affect their experience of and attitudes toward disclosure and concealment, and subsequently the influence of these factors on their mental health. Despite this, research with a specific focus on nonbinary populations remains scant, and researchers of the broader trans community rarely address these differences.

The present review

Trans outness research does not reflect the contemporary perception of disclosure and concealment as distinct constructs and appears ill-equipped to account for the unique population-based complications outlined above. It may subsequently produce inaccurate or otherwise flawed findings regarding the mental health consequences of concealing and disclosing trans identities. In order to evaluate the capacity of current research methods to address these issues, this scoping review presents a synthesis and overview of the theoretical and operational definitions used to capture disclosure and concealment in published psychological studies of trans populations. While the findings of the included studies and any observable trends will also be reported, we are more concerned with the quality and reliability of these findings than the results themselves.

To our knowledge, this is the first review with a primary focus on trans outness concepts. Searches of APA PsycINFO, ProQuest, and the Web of Science Core Collection revealed four systematic reviews of gender minority stress and mental health that included concealment as one of several variables of interest; one was published before we initiated our review (Pellicane & Ciesla, 2022) and three were published while it was underway (Mezza et al., 2024; Pellicane et al., 2023; Wilson et al., 2023). All four of these reviews had a broad scope, seeking to evaluate associations between gender minority stressors and mental health variables rather than examine individual stressors in detail. They consequently included few articles related to concealment and overlooked related concepts such as disclosure and outness. They also did not attempt to critically examine or contrast the definitions and tools used in concealment literature as Pachankis et al. (2020) did for sexual minorities. The present review thus differs significantly from this past work in its approach and objectives. It fills an unmet need for research exploring the unique challenges and flaws present in trans outness research.

Methods

Following a preliminary search of the Open Science Framework's (OSF) database for any similar ongoing research projects, a scoping review protocol was registered with the OSF on May 31st, 2023. It can be accessed using the following link: https://osf.io/cs5tk/. The authors planned and completed the scoping review without the use of generative AI tools. The review was guided by the PRISMA extension for scoping reviews (PRISMA-ScR). The optional "quality appraisal" steps of the screening process were omitted, as we aimed not to exclude problematic studies, but to explore their shortcomings.

Inclusion criteria

To avoid reinforcing the problematic conflation of sexuality and gender diverse populations, we sought to include only papers that were directly relevant to trans outness concepts. Considering the contradictory ways in which disclosure and concealment have been conceptualized in different papers and the relative scarcity of trans-specific research on this topic, we adopted an otherwise inclusive approach to selecting papers for this review, placing no restrictions on publication date or country of origin. We included papers that met the following criteria: (1) empirical, peer-reviewed research paper, (2) published in English, (3) sample comprised entirely of trans participants or containing a subset of trans participants whose results are reported separately to cisgender participants, (4) assessed participants' decisions to conceal or disclose their trans status, gender identity, or assigned sex, (5) assessed the link between these disclosure decisions and one or more mental health factors. Articles containing original analysis of an existing dataset, such as the 2015 U.S. Transgender Survey, were included, but systematic reviews of published literature were not.

The focus of this review on critical reexamination of research as opposed to meta-analysis allowed us to use an open-ended definition of mental health factors: rather than specifying one or two variables of interest, we accepted any variable that the three authors could agree indicated the overall state of one's psychological well-being. General mental health factors such as self-esteem, depression, anxiety, distress, and perceived life stress were included, whereas situational factors

such as job anxiety (e.g., Law et al., 2011) or exposure to stressful conditions (e.g., Goldbach & Knutson, 2023; other minority stressors) were not. Measures of life satisfaction, suicidality, and destructive behaviors symptomatic of mental health issues (e.g., self-injury or binge drinking) were also included. This allowed us to identify and examine a broad range of papers exploring trans outness concepts in the context of mental health.

To ensure the relevance of all included papers to trans-specific outness issues, studies that exclusively examined outness about attributes other than a trans identity (e.g., trauma, atheism, sexual orientation) or conflated the concealment of sexual orientation and trans identity (e.g., "LGBT + identity," "sexual or gender identity") were excluded, while papers that did not clearly specify what was being concealed were included only if their sample was comprised entirely of trans participants. One paper with a variable inconsistently referred to as both "concealment of gender identity" and "sexual minority concealment" (Fredriksen-Goldsen et al., 2014) and two which measured "fear of disclosure" rather than disclosure decisions or behaviors (Dhanani & Totton, 2023; Özata Yildizhan et al., 2018) were excluded. One paper that was initially excluded on this basis, Ünsal et al. (2023), was reassessed and ultimately included during the peer review process. Although not indicated in the paper itself, the survey on which it was based displayed trans-specific identity disclosure prompts to trans participants (European Union Agency For Fundamental Rights, 2021).

Finally, papers exploring indirect links between outness and mental health factors were included only when such relationships were explicitly proposed or reported. Studies in which an outness variable and a mental health variable were both associated with a common factor, but no mediation or moderation analysis was performed (e.g., Huit et al., 2022; Pollitt et al., 2021) were excluded.

Search strategy

A search strategy was developed in consultation with Southern Cross University librarians. Extensive lists of search terms capturing each of our three main concepts (trans people, disclosure/concealment, mental health) were used in conjunction with Boolean operators to retrieve any paper containing at least one term from each category in its title, abstract, keywords or index terms. An example of the search strategy is provided in Appendix A. This strategy was used to search four research databases of academic literature: APA PsycINFO and the Psychology & Behavioral Sciences Collection, both accessed through EBSCOhost, ProQuest, and the Web of Science Core Collection. The final search was conducted in May of 2023. Monthly email alerts were created for each database and monitored by the first author for the duration of 2023. Citation searching and hand searching were also employed by the first author to identify papers that examined trans concealment without specifying so in the abstract.

Screening process

The screening process was conducted using the online systematic review software Covidence (Veritas Health Innovation, 2023). The screening process is illustrated in Figure 1. Our initial search, after accounting for duplicates, identified 636 abstracts, which were all dual screened by a combination of the three authors. Conflicts were discussed as a group and decided on by the remaining author. In total, 108 papers were approved for full-text review. At that stage, 17 additional studies were identified through hand searching, citation searching, and email alerts, and 46 papers were ultimately included for data charting.

Data charting

Data was extracted from the 46 included papers and analyzed by the first author alone using a data charting template overseen by all authors. The template was designed to address the areas of concern outlined previously in this review; in addition to basic details about the publication, demographics and research design of each study, it included space to list, categorize, and describe all tools used to assess outness and mental health variables and report any relevant findings or

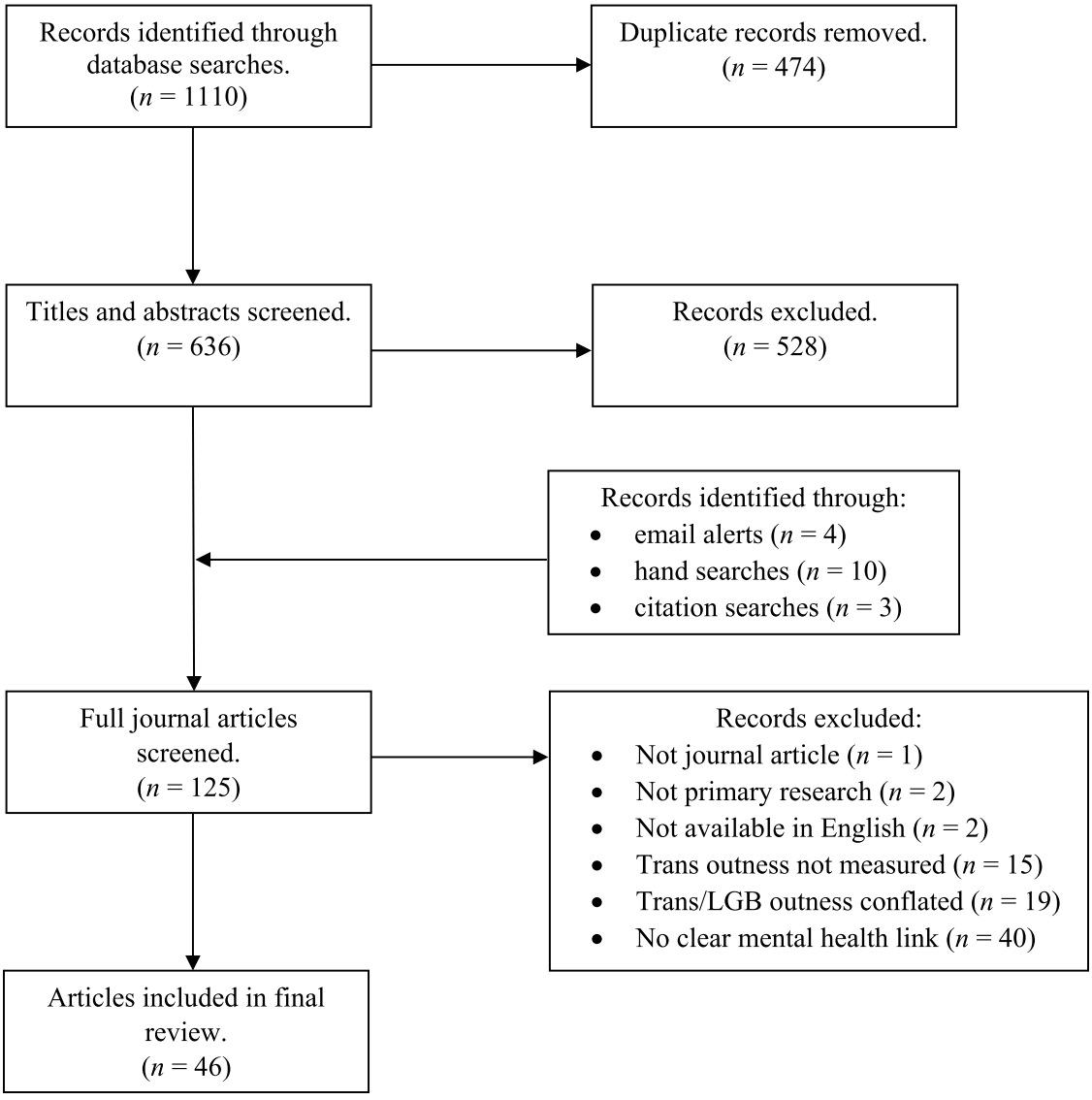

Figure 1. Paper selection process.

excerpts. The extractor was also asked to note the direction, significance, nature, and effect size of any pertinent correlations, and whether each paper ignored, recognized, or methodologically addressed the three population-specific challenges. The content of the data charting template is described in further detail in Appendix B.

Results

Our final set of papers consisted of 33 quantitative studies, 10 qualitative studies, and three studies with mixed methods. The majority ($n = 35$) were either published in the past five years, or available online ahead of their print publication, indicating a recent spike in attention given to trans outness issues by researchers and the relative nascency of the field. Characteristics of the included studies are reported in Table 1.

Defining outness

While researchers exploring outness in sexual minorities and other populations now recognize disclosure and concealment as related but distinct constructs (Jackson & Mohr, 2016; Uysal, 2020), the reviewed papers rarely did. The terms "non-disclosure" and "concealment" were used interchangeably in most, as were "disclosure," "outness," and "openness." This conflation was prominently

Table 1. Characteristics of studies.

Characteristic	Studies ($n = 46$)
Year of publication	
2010–2015	5 (10.9%)
2016–2018	6 (13.0%)
2019–2023	27 (58.7%)
Ahead of print at time of data collection	8 (17.4%)
Location	
United States/Canada	23
Europe	9
Asia	4
Australia	3
International	8
Study design(s)	
Cross-sectional survey	36
Longitudinal survey	1
Interviews	9
Focus groups	3
Case study	2
Content analysis	1
Role of outness variable(s)	
Main subject	20
Broader focus on minority stress	18
Demographic/control variable	4
Theme identified during analysis	4
Average participant age	
Range	24.90—48.92
Mean	29.63
Sample size (quantitative papers)	
Range	71–27,715

demonstrated by Testa et al.'s (2015) adaptation of the minority stress model for trans individuals, the Gender Minority Stress and Resilience Measure (GMSR). The measure contains a subscale which was labeled "nondisclosure" but referred to as "concealment" in several papers, including the paper developing the scale (Helsen et al., 2022; Lindley & Budge, 2022; Testa et al., 2015). In another paper, scores on an "outness" variable were reversed to capture "concealment" (Jardas et al., 2023), implying a unidimensional concept of outness, wherein disclosure and concealment are two ends of a single continuum. Two studies attempted to distinguish outness concepts. One speculated that outness "may be somewhat different from the opposite of nondisclosure, or concealment" (Testa et al., 2017, p. 134), while another used Meidlinger & Hope's (2014) model wherein outness is a composite of disclosure and concealment constructs (Osmetti & Allen, 2023). Overall, the reviewed papers displayed no clear distinctions between the terms and did not reflect the model accepted in other branches of contemporary outness research.

To address this discrepancy, we sought to illuminate how the reviewed papers conceptualized outness by comparing the definitions provided in their introductions. All but four of the papers gave some definition of an outness concept. Twenty-five studies defined concealment using the context of the minority stress model. Of these, 21 identified concealment as a proximal or internal stressor, and 13 explained the interaction effect of distal and proximal stressors. Other studies introduced the topic by first discussing broader concepts of self-disclosure in the psychological literature (e.g., Strain & Shuff, 2010; van de Grift, 2023), by highlighting the function of identity concealment as a maladaptive avoidant coping strategy (Bränström & Pachankis, 2021; de Vries et al., 2023) or resilience strategy (Chakrapani et al., 2021), or by exploring the lengthy process of coming out and receiving social gender affirmation as a milestone in a trans person's psychological development (Bethea & McCollum, 2013; Charter et al., 2022; Strain & Shuff, 2010; Taube & Mussap, 2022; White Hughto et al., 2020). While the role of coming out in healthy identity development has also been described in sexual orientation studies, social gender affirmation may represent a unique motivational factor in outness decisions for trans people.

In order to explain the role and importance of disclosure or concealment, many papers cited prior evidence of relationships between these and other constructs. Some identified common barriers to disclosure, such as the fear of social rejection and discrimination (e.g., van de Grift, 2023; Yang et al., 2016), while many discussed the effects of outness on various mental health factors, including psychological well-being (White Hughto et al., 2020), distress (Matsuno et al., 2022), quality of life (Flynn & Smith, 2021), anxiety (McKay & Watson, 2020), depression (van de Grift, 2023), and suicidal ideation (Testa et al., 2017). Finally, several noted that whether a disclosure has a positive or negative effect on a trans individual's mental health largely depends on the reaction that disclosure receives (Haimson, 2019; Wall et al., 2022; Zhou et al., 2021). The reviewed papers often cited population nonspecific evidence of these relationships alongside or in place of findings from other trans studies, indicating the assumption that disclosing and concealing a trans identity is comparable to disclosing and concealing other stigmatized identities.

The majority of included papers did not address the previously discussed key areas in which these traditional outness frameworks fail to reflect the experiences of trans people accurately. Less than a quarter ($n = 11$) of the included papers noted a distinction between the concealment of assigned sex and gender identity. Just as few ($n = 11$) brought up practical aspects of trans concealment such as the need to manage one's appearance and the possibility of being outed against one's will, and just 11% ($n = 5$) covered additional factors affecting identity concealment for nonbinary people. In sum, the frameworks used to describe outness in most trans research papers reflected neither the current understanding of outness concepts in other branches of outness research nor the population-specific problems that threaten to undermine research findings.

Measuring outness

Measurement approach

Characteristics of the measurement strategies used to capture outness variables across all reviewed papers are detailed in Table 2. By far the most widely used tool was the *nondisclosure* subscale of the GMSR (henceforth GMSR-ND), which appeared in close to half ($n = 16$) of the quantitative studies as a predictor variable and once to test the construct validity of a different scale (Lindley & Budge, 2022). The GMSR-ND measures agreement to statements indicating effortful concealment behaviors; because it was developed specifically for use in trans populations, it has the benefit of listing processes involved in concealing a trans identity that might not be experienced by other marginalised groups, such as modifying one's way of speaking and avoiding body exposure in locker rooms. No other tool was used more than once in the reviewed literature, reflecting the noted heterogeneity of methodologies used to assess outness.

Lindley and Budge (2022) developed and tested the Trans and Nonbinary Coping Measure (TNCM), which includes two pertinent subscales. *Identity nondisclosure* directly asks how often participants avoid disclosing their trans identity to others, and *strategic gender expression* asks how often participants deliberately employ pronouns and mannerisms that are "not fully aligned with how [they] feel" to avoid being seen as trans. This was the only observed measure other than the GMSR-ND to assess physical, trans-specific concealment behaviors such as movement and dress. Two other papers used validated scales to measure an outness construct: van de Grift (2023) used the *openness* subscale of the Coping with Disorders of Sex Development scale (Kleinemeier et al., 2010), which asks whether intersex participants can "talk openly" about their condition, while Osmetti and Allen (2023) used a trans-appropriate adaptation of the Nebraska Outness Scale (developed by Meidlinger & Hope, 2014; adapted by Flentje et al., 2021), which measures what proportion of people in several social categories know the participant's trans identity (*disclosure*) and how often the participant avoids topics related to their gender in conversation with them (*concealment*). McKay and Watson (2020) used an adaptation of Mohr and Fassinger's (2000) Outness Inventory, but made significant modifications to the tool's structure, abridging and rewriting its prompt, item descriptions, and response scale to ask "how many people" know the participant's identity rather than the likelihood of them knowing. These alterations were deemed substantial enough for McKay and Watson's (2020) scale to be considered an original measure in this review.

All other quantitative papers assessed outness using individual items (e.g., Zeluf et al., 2016) or unvalidated psychometric scales (e.g., Huffman et al., 2021). Two addressed specific conversational behaviors—correcting people who misgender you (Flynn & Smith, 2021) and discussing transgender issues around coworkers (Huffman et al., 2021). Others took a more direct approach to measuring disclosure levels, either by asking participants to estimate whether or how many people knew about their identity ($n = 4$) or by asking them whether, to what extent or to how many people they had come out or "were open" ($n = 9$). Finally, Strain and Shuff (2010) used a combination of three measures—a direct single-item measure of openness, an "Outness Attitudes Scale," the details of which were not provided, and an original "Outness Demographics Questionnaire" addressing identity centrality and

Table 2. Details of disclosure/concealment measurement strategies.

Used in…	Measure	Items	Example prompt, response format	Target groups	Coded as…
			Validated scales		
17 papers	Nondisclosure (GMSR)	5	"Because I don't want people to know my gender identity/ history, I change the way I walk, gesture, sit, or stand." 5-point scale: *strongly disagree* to *strongly agree*	N/A	Summary variable
van de Grift (2023)	Openness (DSD-specific coping)	4	"I can talk openly to my friends about my condition." 4-point scale: *completely true* to *not true at all*	N/A	Summary variable
Lindley and Budge (2022)[a]	Nondisclosure (TNCM)	4	"When meeting new people I avoid disclosing my trans identity."	N/A	Summary variable
	Strategic gender expression (TNCM)	5	"I use pronouns that are more comfortable for others so that I am not perceived as trans." 5-point scale: *I do not do this* to *I almost always do this*		Summary variable
Osmetti and Allen (2023)[a]	Disclosure (NOS)	5	"What percentage of the people in this group do you think are aware that you identify as transgender, non-binary or otherwise gender diverse?" 11-point scale: *0%* to *100%*	Immediate family, extended family, acquaintances, work / school, strangers	Two summary variables, overall score (outness)
	Concealment (NOS)	5	"How often do you avoid talking about topics related to or otherwise indicating your gender identity (e.g., not discussing your transition, not correcting people who use your deadname or the wrong pronouns) when interacting with members of these groups?" 11-point scale: *Never* to *Always*		
			Non-validated scales and items		
Bränström and Pachankis (2021)	Concealment of transgender identity	4	"To how many people among the following groups are you open about yourself being transgender?" 4-point scale: *none* to *all*	Family, friends, neighbors, colleagues / schoolmates	Dichotomous summary variable
Flynn and Smith (2021)	Identity concealment	1	"When people in your life assume you are something other than non-binary/ genderqueer (such as a man or a woman), how do you respond?" 3-point scale: *I usually let them assume…* to *I always tell them I identify as…*	N/A	Dichotomous variable
	Blending	1	"People can tell I'm trans even if I don't tell them." 5-point scale: *Never* to *Always*		Dichotomous variable
Huffman et al. (2021)	Gender identity openness (Ruggs et al., 2015)	3	"At work, I tell people that I am gender variant if it comes up." 7-point scale: *strongly disagree* to *strongly agree*	N/A	Summary variable
Jardas et al. (2023)	"Outness (Concealment)"	3	"Who knows about your gender identity?" Checkboxes	Parents, friends, teachers	Summary variable
Kcomt et al. (2020)	Disclosure	8	"How many people in each group below currently know you are trans?" 4-point scale: *None know that I am trans* to *All know that I am trans* or *I currently have no people like this in my life.*	Immediate family, extended family, LGBT friends, cishet friends, boss/manager, coworkers, classmates, healthcare providers	Summary variable
	Visual conformity	1	"People can tell I am transgender even if I don't tell them." 5-point scale: *Never* to *Always*	N/A	Score (sorted into three categories)

(*Continued*)

Table 2. Continued.

Used in…	Measure	Items	Example prompt, response format	Target groups	Coded as…
McKay and Watson (2020)	"Degree of disclosure (outness)"	3	"For each of the following groups, how many people currently do you think know of your transgender or non-binary identity?" 5-point scale: *None* to *All*	Family, LGBTQ friends, healthcare providers	3 scores
Strain and Shuff (2010)	Outness Demographics Questionnaire	14	"With respect to my overall identity, being transsexual is of central importance." 5-point scale: *strongly agree* to *strongly disagree*	N/A	Summary variable of 4 items
	Outness Attitude Scale (Bosker, 2002)	15	Not provided. 5-point scale: *strongly agree* to *strongly disagree* or *very important* to *not at all important*		Summary variable
	Openness (Franke and Leary, 1991)	1	"How open are you about your transsexualism?" 5-point scale: not provided.		Score
Taube and Mussap (2022)[a]	Disclosure of gender identity	3	Not provided.	Parents, siblings, friends	3 dichotomous variables
Ünsal et al. (2023)	Identity disclosure	8	"To how many people among the following groups are you open about yourself being [RESPONDENT CATEGORY]" 4-point scale: *None* to *All* or *Does not apply to me*.	Family, friends, neighbors, medical staff, schoolmates, superior, colleagues, customers	Summary variable
de Vries et al. (2023)	Being "out" in community	1	Not provided. 3-point scale: *No one* to *All*.	N/A	Score
Wall et al. (2022)	Outness	2	"To what degree are you open (out) with your transgender identity in your personal/ social life including with friends and family?" 7-point scale: *none of the time* to *all of the time*	Friends and family, workers or classmates	Summary variable
White Hughto et al. (2020)	Social gender affirmation	1	Not provided.	Family members or coworkers	Dichotomous variable
Yang et al. (2016)	Disclosure to family members	1	"Do your family members know that you are a transgender woman?" 3-point scale: *Yes*, *not sure*, *no*	Family members	Score
	Disclosure to friends	1	"How many of your friends know you are a transgender woman?" 4-point scale: *none* to *all*	Friends	Score
Zeluf et al. (2016)	Openness with being trans	1	"To what extent are you open with the fact that you are trans?" 4-point scale: *Always open* to *Never open* or *Trans identity shows*.	N/A	Score
Zhou et al. (2021)	Disclosure status	5	"Did you come out to your father?" Yes/no.	Father, mother, brother, sister, grandparents.	N/A[b]

[a]Ahead of print at time of data collection. [b]Correlation was based on mental health before and after coming out. GMSR = *Gender Minority Stress and Resilience Measure* (Testa et al., 2015), TNCM = *Trans and Nonbinary Coping Measure* (Lindley and Budge, 2022), NOS = *Nebraska Outness Scale* (Meidlinger and Hope, 2014).

whether previous disclosures had been positive experiences.

Of the 14 tools directly measuring disclosure levels rather than behaviors indicating disclosure, four used a single item representing an overall degree of disclosure to others, and 10 employed a set of items representing degrees of disclosure to several categories of people in the participant's life (such as their family, friends, and work colleagues), although in most cases the items were consolidated into a single summary variable representing an overall disclosure level before analysis. Furthermore, four used dichotomous (yes/no) items, nine used Likert scales, and one used a combination of both.

Issue 1: Dimension of identity being concealed or disclosed

The GMSR-ND distinguishes between concealment of assigned sex and concealment of gender identity by using prompts specifying either "gender identity" or "gender history" depending on whether the participant previously reported to "live in [their] affirmed gender all or almost all of the time." However, researchers using the tool are encouraged to use a single "nondisclosure" variable to capture and report scores on the subscale (Testa et al., 2015), which every reviewed paper using the GMSR-ND did. Other tools measuring an outness variable used prompts including the phrase "gender identity" ($n = 4$), the specific identity of the study's demographic (e.g., "nonbinary or genderqueer", "transgender woman"; $n = 4$), or a general term for trans people (e.g., "your transgender identity," "being gender variant"; $n = 8$), or asked whether participants had "come out" without specifying an identity ($n = 2$). None of the included studies separately reported assigned sex outness and gender identity outness scores, so any differences between the two remain impossible to quantify at this stage.

Issues 2 and 3: Involuntary disclosures and nonbinary inclusion

Four studies measured involuntary or unwanted disclosures in some way. Of the four, only Zeluf et al. (2016) integrated it into an outness measure, which was achieved by including "trans identity shows" in place of a "not applicable" option on their openness question. Zhou et al. (2021) included a separate question about the circumstance of each participant's disclosure to their family, to which 13.3% of participants responded that they were either questioned or forced to disclose.

Two studies reported on data from the 2015 U.S. Transgender Survey, which included the item "people can tell I am transgender even if I don't tell them," responses to which were coded as *visual conformity* by Kcomt et al. (2020) and *blending* by Flynn and Smith (2021), the latter of whom exclusively analyzed data from the nonbinary and genderqueer participants. The 2015 U.S. Transgender Survey also included the only observed outness item phrased specifically to apply to nonbinary individuals: "When people in your life assume you are something other than nonbinary/genderqueer (such as a man or a woman), how do you respond?" This item was clearly worded and unlikely to be misinterpreted by participants and captured a type of concealment (not correcting the assumptions of others) not represented elsewhere in the reviewed papers.

Ultimately, the reviewed studies demonstrated that while some attention has been provided to the elements of trans outness experiences not represented by traditional disclosure and concealment theories, researchers have not yet successfully accounted for these factors methodologically.

Associations between outness and mental health

Qualitative evidence

Qualitative research methods are relatively flexible and able to detect unpredicted phenomena reported by participants; consequently, the qualitative studies we reviewed were less vulnerable to the effects of flawed or inadequate outness frameworks. These studies indicated a deleterious effect of concealing a gender identity on one's mental health. Concealment was consistently associated with feelings of inauthenticity, anxiety, frustration, and exhaustion (Kim et al., 2023; Matsuno et al., 2022; Rood et al., 2017), and suggested by one participant to be the direct cause of their self-harm (Jackman et al., 2018). Participants emphasized that coming out "is not a one-time act" (Kim et al., 2023, p. 83), and that the relief felt after one's initial disclosure could quickly give way to anxiety about future disclosures (Kauten et al., 2022), showing the inadequacy of dichotomous measures that presume a participant is either "out" or "not out." Nevertheless, these initial disclosures were ascribed particular importance and described as intensely liberating (Bethea & McCollum, 2013) and "probably the single most important thing you can do towards mental, emotional, [and] physical health" (Riggle et al., 2011, p. 151).

Jackman et al. (2018) highlighted intersectional aspects of concealment, noting that simultaneously concealing one's gender identity and history of self-harm could have a particularly strong

negative effect on one's mental health. Participants in Rood et al. (2017) and Chakrapani et al. (2021) outlined the difference between concealing one's gender identity and concealing one's assigned sex, with the latter described as "the opposite of stressful—in fact, it's extremely relieving or uplifting" (Rood et al., 2017, p. 710). Both papers mentioned that the ability to blend or pass as cisgender was instrumental to this process, though Rood et al. (2017) also reported that participants had become more confident and less concerned with blending and the perceptions of others over time. A single qualitative paper focused on the experiences of nonbinary participants and noted the increased burden of disclosure when one must also explain and defend the validity of their own identity (Matsuno et al., 2022). Several studies also explained that being outed against one's will, either by not passing or through another person's carelessness, was a particularly distressing experience (Rood et al., 2017; Salvatore et al., 2022).

Overall, the reviewed qualitative papers provided high-quality evidence regarding the complexity of disclosure and concealment behaviors and their importance to mental health in the trans community but were too few in number to comprehensively illustrate and model the nuances they revealed.

Quantitative evidence

Detailed characteristics and summarized relevant findings of all included quantitative and mixed-methods research papers are reported in Table 3. Most of the papers suggested that nondisclosure/concealment of a trans identity had a negative effect on mental health, or that disclosure/outness about a trans identity had a positive effect on mental health.

Bivariate associations between GMSR-ND scores and a mental health factor were reported in 16 studies, 14 of which found a significant correlation indicating a detrimental psychological effect of concealment. Eleven of these correlations could be classified as having a small effect size. Flynn and Bhambhani (2021) observed that psychological inflexibility moderated the relationship between GMSR-ND scores and life satisfaction, while Tebbe et al. (2022) found that sense of belonging mediated the relationship between GMSR-ND scores and anxiety for a subset of participants only. Three studies attempted but were unable to find evidence of an indirect effect of distal stress factors on mental health factors through GMSR-ND scores (Jones et al., 2022; Lloyd et al., 2019; Testa et al., 2017).

Several papers (e.g., Jones et al., 2022; Testa et al., 2017) noted that GMSR-ND scores explain less variance in mental health outcomes than internalized transphobia and expectations of rejection—the other proximal stressors in the GMSR model. Assessing this pattern across the reviewed literature, we observed that nondisclosure had smaller effects on mental health variables than other proximal stress factors in all but one of the studies in which it appeared, including several instances in which nondisclosure had only small effect sizes while other factors had moderate effect sizes (Hidalgo et al., 2019; Scandurra et al., 2017; Tebbe et al., 2022). In other cases, nondisclosure failed to contribute to a relationship that other proximal stressors contributed to (Helsen et al., 2022; Jones et al., 2022; Puckett et al., 2024; Testa et al., 2017). One study reported a strong association between nondisclosure and gender dysphoria, but argued that gender dysphoria should be considered a fourth proximal stressor rather than a mental health symptom (Lindley & Galupo, 2020); classifying it as such would leave no paper in which GMSR-ND scores were not the weakest predictor of mental health among proximal stressors. Finally, the only longitudinal study reviewed found that neither nondisclosure nor internalized transphobia predicted any mental health outcome or mediated the effect of discrimination on a mental health outcome over a 12-month period (Lloyd et al., 2019), illuminating a possible weakness of the model.

A further 18 papers reported associations between mental health and outness variables measured without the use of the GMSR-ND. Three of these used alternative measures of concealment, and each identified positive and negative relationships with mental health (Bränström & Pachankis, 2021; Flynn & Smith, 2021; Lindley & Budge, 2022). Bränström and Pachankis (2021) depicted a multi-level mediation model where

Table 3. Quantitative associations between disclosure or concealment and mental health in reviewed papers.

Citation	Location	Sample	Design	Focus	Outness measure	Key findings
				Nondisclosure/concealment		
Algarin et al.(2024)[a]	Mexico	151	Cross-sectional survey	Minority stress (partial)	Nondisclosure (GMSR)	Small positive correlations with depression (CES-D-10), life stress (PSS), PTSD (PC-PTSD).
Bränström and Pachankis (2021)	Europe	6771	Cross-sectional survey	Main	Concealment of transgender identity	Mediated a moderate negative effect of structural stigma on life satisfaction and a small positive effect via reduced discrimination.
Exline et al. (2021)	Intl.	305	Cross-sectional survey	Minority stress (full)	Nondisclosure (GMSR)	Small negative correlation with self-esteem (RSES).
Flynn and Bhambhani (2021)	USA[b]	402	Cross-sectional survey	Minority stress (partial)	Nondisclosure (GMSR)	Moderate negative correlation with life satisfaction (SWLS) moderated by psychological flexibility and inflexibility (MPFI).
Flynn and Smith (2021)	USA	9769	Cross-sectional survey	Main	Concealment, blending	In a nonbinary sample, "low concealers" had higher victimization and psychological distress (K6), "blenders" had lower victimization and higher distress.
Helsen et al. (2022)	The Netherlands, Flanders	143	Cross-sectional survey	Minority stress (partial)	Concealment (GMSR)	Did not predict mental health difficulties (GHQ-12) directly or indirectly through community connectedness (GMSR) or gender nonconformity.
Hidalgo et al. (2019)	USA	258	Cross-sectional survey	Minority stress (full)	Nondisclosure (GMSR)	Small positive correlations with depression and anxiety (YI).
Jäggi et al. (2018)	Switzerland	143	Cross-sectional survey	Minority stress (full)	Nondisclosure (GMSR)	Moderate positive correlation with depression (ADS-K; German-language version of CES-D).
Jones et al. (2022)[a]	USA	292	Cross-sectional survey	Minority stress (full)	Nondisclosure (GMSR)	Small negative correlation with post-traumatic growth (PTGI-S), did not mediate any relationship between distal stress and posttraumatic growth.
Lindley et al. (2021)	Intl.	297	Cross-sectional survey	Minority stress (partial)	Nondisclosure (GMSR)	Small positive correlation with problematic alcohol use (AUDIT).
Lindley and Budge (2022)[a]	Intl.	497	Scale development	Main	Nondisclosure (TNCM)	Small negative correlations with anxiety but not depression or stress (DASS-21).
					Strategic gender expression (TNCM)	Small positive correlations with depression, stress and anxiety (DASS-21).
Lindley and Galupo (2020)	Intl.	297	Cross-sectional survey	Minority stress (full)	Concealment (GMSR)	Small to moderate positive correlations with gender dysphoria factors (GCLS).
Lloyd et al. (2019)	England	358	Longitudinal survey	Minority stress (partial)	Nondisclosure (GMSR)	Small positive correlations with depression, anxiety, and stress (DASS-21), but failed to predict them over a 12-month period or mediate a relationship between discrimination (GMSR) and DASS-21 scores in full structural model.
Puckett et al. (2024)[a]	USA	158	Cross-sectional survey	Minority stress (full)	Nondisclosure (GMSR)	No correlations with depression or anxiety (PROMIS).
Scandurra et al. (2020)	Italy	203	Cross-sectional survey	Minority stress (full)	Nondisclosure (GMSR)	Small positive correlations with depression (SMDA), anxiety (SMGAD), and stress (PSS).
Tebbe et al. (2022)	USA	301	Cross-sectional survey	Minority stress (partial)	Nondisclosure (GMSR)	Small positive correlations with depression (CES-D), anxiety (BuAI), and hopelessness (HHH). Sense of belonging (SBI) mediated its effect on anxiety for a subset of participants only.
Testa et al. (2015)	USA, Canada	844	Scale development	Minority stress (full)	Nondisclosure (GMSR)	Small positive correlations with depression (CES-D), anxiety (SPIN), and perceived life stress (PSS).
Testa et al. (2017)	USA, Canada	816	Cross-sectional survey	Minority stress (full)	Nondisclosure (GMSR)	Small positive correlation with suicidal ideation (SIS), not mediated by belongingness and burdensomeness (INQ-12). Did not mediate a relationship between any distal stress factor and suicidal ideation.
Watson et al. (2019)	USA	369	Scale development	Other	Nondisclosure (GMSR)	Small positive correlations with psychological distress (K-10) and perceived stress (PSS-S).

(*Continued*)

Table 3. Continued.

Citation	Location	Sample	Design	Focus	Outness measure	Key findings
				Disclosure/outness		
van de Grift (2023)	Europe	903	Cross-sectional survey	Main	Condition openness (DSD-specific Coping)	Small negative effects on anxiety and depression (HADS) mediated by self-esteem (RSES) and life satisfaction (WHOQOL).
Huffman et al. (2021)	USA	263	Cross-sectional survey	Main	Gender identity openness	Small positive correlation with life satisfaction (SWLS).
Jardas et al. (2023)	USA	1943	Cross-sectional survey	Minority stress (full)	Outness	Small negative correlation with depression (CES-D), no correlation with anxiety (GAD-7). Mediated relationships between identifying as Asian and higher depression and anxiety.
Kcomt et al. (2020)	USA	27,715	Cross-sectional survey	Other	Disclosure, visual conformity	Participants with lower levels of disclosure were more likely to engage in frequent binge drinking. No associations with visual conformity.
McKay and Watson (2020)	USA	3624	Cross-sectional survey	Main	Disclosure	Less depression symptoms (KADS) and higher self-esteem (RSES) observed in participants who disclosed to "most" or "all" healthcare providers.
Osmetti and Allen (2023)[a]	Australia	202	Cross-sectional survey	Main	Outness (NOS)	Moderate positive effect on psychological wellbeing (PWBS) partially mediated by authenticity (T-PIM) but not harassment.
Strain and Shuff (2010)	USA	105	Cross-sectional survey	Main	Outness Experiences	No correlations with depression (BDI-II), anxiety (BeAI), or self-esteem (RSES).
					Outness Attitudes	Small negative correlations with depression, anxiety, and self-esteem.
					Openness	Moderate negative correlations with depression and anxiety, small positive correlation with self-esteem.
Ünsal et al. (2023)	Europe	15,845	Cross-sectional survey	Main	Identity disclosure	Negatively mediated an association between community participation and depression, not moderated by country-level structural stigma.
Taube and Mussap (2022)[a]	Intl.	951	Cross-sectional survey	Main	Outness	Small positive correlation with personal wellbeing (PWI-A), no direct correlation with psychological adjustment (DASS-21). Indirect effects on both through social support (MSPSS).
de Vries et al. (2023)	Ireland	279	Cross-sectional survey	Other	Being "out" in community	Moderately higher mental distress (DASS-21) in participants with lower levels of outness.
Wall et al. (2022)	USA	342	Cross-sectional survey	Main	Outness	No bivariate correlation with psychological distress (BSI). Direct negative effect on psychological distress moderated by community connectedness (GMSR) observed only when accounting for indirect positive effect through discrimination (GMSR).
White Hughto et al. (2020)	USA	288	Cross-sectional survey	Main	Social gender affirmation	Negative correlations with depression, anxiety, and stress (DASS-21) in multivariable models.
Yang et al. (2016)	China	209	Cross-sectional survey	Main	Disclosure of gender identity	Significantly more anxiety symptoms (SAS) for participants who had not disclosed to any friends. No effect for disclosure to family. Contributions to anxiety symptoms were not significant in overall regression models.
Zeluf et al. (2016)	Sweden	796	Cross-sectional survey	Other	Openness with being trans	No association with quality of life.
Zhou et al. (2021)	Japan	71	Cross-sectional survey	Main	Disclosure	Self-evaluation of mental state after coming out significantly higher than mental state before coming out.

[a]Ahead of print at time of data collection. [b]Nationality of sample not specified, assumed from author background. Unabbreviated names of mental health tools available in Appendix C.

structural stigma elicits concealment, which in turn has a negative effect on life satisfaction and an indirect positive effect *via* decreased rates of discrimination. This demonstrates the utility of multiple mediation models for revealing bidirectional effects of disclosure. The other two relate to this review's key areas of concern: Lindley and Budge's (2022) measures of nonspecific trans identity nondisclosure and explicitly non-affirming concealment behaviors were associated with decreased and increased anxiety respectively, while Flynn and Smith (2021) reported that for nonbinary participants, being perceived as male or female and correcting others upon being perceived as male or female both predicted higher rates of distress. These papers clearly illustrate how the methodology used to capture outness can affect a study's findings, thus conveying the importance of developing precise and robust outness measurement strategies for trans people.

Other papers instead used a measure of disclosure or outness; all but one (Zeluf et al., 2016) displayed positive relationships with mental health variables. Eight studies identified direct associations between outness and mental health, one of which was only significant after accounting for an indirect negative effect through heightened discrimination (Wall et al., 2022). Four were mediated or moderated by another variable—authenticity (Osmetti & Allen, 2023), community connectedness (Wall et al., 2022), social support (Taube & Mussap, 2022), self-esteem and life satisfaction (van de Grift, 2023). Finally, one study indicated that disclosure negatively mediated an otherwise positive relationship between community participation and depression (Ünsal et al., 2023).

Although qualitative literature recognized that outness is an ongoing, dynamic process rather than a one-time act (e.g., Kim et al., 2023), two quantitative studies eschewed measurements of outness for temporal "within-subjects" designs, assessing the mental health of participants before and after coming out (Haimson, 2019; Zhou et al., 2021). Additionally, 11 studies measured disclosure to various categories of people, but only two included the different categories as separate variables in their analysis. While one of these found that disclosure to friends had a stronger effect on mental health than disclosure to family (Yang et al., 2016), the other only reported the indirect effects of each on mental health (Taube & Mussap, 2022), so conclusions about their relative importance cannot be drawn.

Discussion

While the disclosure and concealment of various stigmatized identities have been associated with mental health outcomes, the conceptualization of concealment used in trans research has been questioned. We reviewed research on this subject in order to assess the rigor with which it has been conducted, reported, and interpreted. The findings confirmed our hypothesis that psychological outness research in trans populations has thus far overlooked key population-specific aspects of outness behaviors and may subsequently lack the ability to accurately assess how trans people experience these decisions and the effects they might have on their mental health. While the majority of included quantitative research indicated a negative effect of nondisclosure/concealment ($n = 16$) or a positive effect of disclosure/outness ($n = 14$) on trans mental health, these unresolved issues and the heterogeneity of definitions and tools used in the studies limit the reliability and applicability of these findings.

Although other researchers have increasingly moved toward envisioning disclosure and concealment as distinct constructs rather than opposite ends of a single continuum (Jackson & Mohr, 2016; Meidlinger & Hope, 2014; Uysal, 2020), the included papers made no clear distinctions between the concepts—the most frequently used tool, the GMSR-ND, was labeled "nondisclosure" but measured effortful concealment behaviors while questions assessing explicit verbal disclosure or a participant's openness were sometimes reverse-coded and labeled "concealment" (Bränström & Pachankis, 2021; Flynn & Smith, 2021; Jardas et al., 2023). While empirical differences between disclosure and concealment have been studied extensively in other branches of outness research (e.g., Camacho et al., 2020; Jackson & Mohr, 2016; Uysal, 2020), only two of the reviewed papers included separate measures of these constructs (Lindley & Budge, 2022;

Osmetti & Allen, 2023). In both of those papers, the measures displayed distinct patterns of association with mental health—Osmetti and Allen (2023) found disclosure a more reliable predictor than concealment, while the inverse was true in Lindley and Budge (2022). Trans research should explore these differences in greater detail and move toward distinguishing identity disclosure and identity concealment.

GMSR nondisclosure subscale

Around half of the quantitative studies had a broader focus on the minority stress model, defined identity concealment as one of the proximal stress factors, and measured it using the GMSR-ND, a trans-specific assessment of deliberate concealment behaviors. Consistent with the findings of Wilson et al. (2023), nondisclosure displayed weaker correlations with mental health outcomes than other proximal stressors in the GMSR model in all but one of the reviewed studies. While this may reflect the innate ability of identity concealment to have both protective and distressing effects (Testa et al., 2017), other researchers have identified this as a flaw of the GMSR, concluding that "identity concealment may be more complex than is represented in the GMSR model" (Jones et al., 2022, p. 7) or that "a differentiated approach to examining the role of concealment in the mental health of transgender people" may be warranted (Helsen et al., 2022, p. 472). The complications outlined in this review do not apply to the other proximal factors in the GMSR (i.e. there is no affirming variety of, nor practical hurdles to experiencing, internalized transphobia or negative expectations for the future), and may thus contribute to this disparity in mental health associations.

Additionally, the minority stress framework suggests that proximal stressors should mediate the negative effects of distal stressors on mental health, such that encountering sources of distal stress leads to proximal stress and proximal stress in turn impairs mental health. Although these indirect relationships were seen both for other proximal stressors and for a summary "proximal stress" variable (Jäggi et al., 2018; Testa et al., 2017), researchers were unable to find evidence of an indirect relationship through nondisclosure specifically (Jones et al., 2022; Lloyd et al., 2019; Testa et al., 2017). This may be explained by the existence of a unique bidirectional relationship between concealment and distal stress, as suggested by Jones et al. (2022) and demonstrated by Bränström & Pachankis (2021), where experiencing distal stress incentivizes concealment, but concealment limits one's future exposure to sources of distal stress. Due to its temporally conditional nature, such a relationship may be difficult to accurately assess without longitudinal data, but the only longitudinal study included in this review failed to find evidence of GMSR-ND scores predicting or being predicted by discrimination over a 12-month period (Lloyd et al., 2019), casting further doubt on the reliability of the GMSR. Although the minority stress model presupposes a temporal relationship between distal and proximal stressors, longitudinal research remains scarce even in sexual orientation outness research (Pachankis et al., 2020). Addressing this scarcity and examining causality within the model should be a priority of future trans outness research.

Other measures

Most other included studies attempted to directly measure the degree to which a participant was "out" in some way or another. Approaches to this differed in three notable ways—firstly, whether studies used a single item to capture a participant's overall degree of outness, or a set of items representing outness to different categories of people in a participant's life (e.g., family, friends, colleagues). Although measures of outness separated by social context were common in the reviewed papers, they were almost always recoded into a summary variable before analysis, making it difficult to ascertain whether outness to any particular group was a stronger or weaker predictor of mental health outcomes. Empirical research establishing the contexts in which outness behaviors are most important to mental health would benefit researchers by enabling the development of standardized tools and the broader trans community by informing outness decisions and clinical care.

The second aspect on which these direct measurement strategies differed was whether participants were given a dichotomous (e.g., *yes* or *no*) or ordinal (e.g., *never*, *rarely*, *sometimes*, *often*, *always*) response format. The third was whether participants were asked about their own disclosure decisions (e.g., "did you come out…," "are you open …") or simply asked whether others knew that they were trans—questions indicative of the measurement approaches Pachankis et al. (2020) categorized as "active disclosure" and "public knowledge," respectively. This is a noteworthy semantic difference because "public knowledge" questions cannot distinguish deliberate and involuntary disclosures. While such wording is used in the most popular tools for measuring sexual orientation outness (Meidlinger & Hope, 2014; Mohr & Fassinger, 2000), it is less suitable for research involving trans participants, who face a high risk of unintentional disclosure, with almost half of the largest sample across the reviewed literature reporting that they are "sometimes," "most of the time" or "always" recognized as transgender even when they don't explicitly disclose the fact (Kcomt et al., 2020). This may explain why most reviewed papers using "public knowledge" questions displayed mixed or relatively weak associations between disclosure and mental health (Jardas et al., 2023; McKay & Watson, 2020; Yang et al., 2016). While firm conclusions about the optimal phrasing of outness measures for trans populations cannot be drawn from such limited evidence, future researchers should recognize the difference between "active disclosure" and "public knowledge" questions and distinguish these measurement strategies when designing studies and interpreting previous research findings.

Key areas of concern

This review highlighted three key problems that arise when applying extant outness frameworks to trans populations: researchers may conflate assigned sex concealment and gender identity concealment, take for granted that concealment is achievable for all participants, and overlook unique manifestations of the model in nonbinary populations. Some reviewed papers raised and discussed these issues, but they were rarely solved or reflected in quantitative study designs.

The GMSR-ND includes separate prompts for "gender identity" and "gender history," suggesting that researchers should show each participant one set of prompts or the other and use a single variable to capture responses (Testa et al., 2015). This implementation treats gender identity concealment and assigned sex concealment as the same process enacted at different points in the transition process, which may be misguided considering their potentially dissimilar effects on mental health (Rood et al., 2017) and the possibility that the two are context-sensitive rather than mutually exclusive (e.g., the same person, at the same point in their transition, might conceal their gender identity and their assigned sex in different situations; Marques, 2019).

The TNCM, meanwhile, includes one scale assessing nondisclosure of a participant's "trans identity" and another measuring actions that are "not fully aligned with how [participants] feel" taken to prevent themselves from being perceived as trans (Lindley & Budge, 2022, p. 10). Although the latter scale closely resembles other measures used to capture effortful concealment, including the GMSR-ND (Jackson & Mohr, 2016; Testa et al., 2015), it was instead labeled strategic gender expression and defined in the context of trans individuals adopting more stereotypically feminine or masculine presentation styles than they would otherwise in order to be recognized as their affirmed gender (Lindley & Budge, 2022). The scale could thus be considered an alternative approach to this issue, specifying non-congruent forms of concealment without specifying assigned sex or gender identity. In the single paper developing and validating the TNCM, outside of which the scales have yet to be used, the correlations between strategic gender expression and the mental health variables were more consistent, stronger, and inverse to those of the nondisclosure measure (Lindley & Budge, 2022), showing a clear empirical difference between the two scales. This finding can be interpreted either as evidence of effortful concealment and nondisclosure being meaningfully distinct concepts or as evidence that the inability to differentiate congruent and non-congruent forms of concealment can directly affect research

findings. Both interpretations suggest that contemporary trans outness research methods are flawed and demonstrate the merit of developing new measurement strategies and modifying existing ones to be more precise.

While concealment of assigned sex and concealment of gender identity were acknowledged as discreet concepts in theoretical definitions (Jardas et al., 2023; Wall et al., 2022) and qualitative research (Rood et al., 2017; Scandurra et al., 2017), no reviewed paper reported the two separately. More research is needed to assess the utility of the TNCM, and researchers using the GMSR should consider exploring the differences between gender history and gender identity concealment by showing both variations of questions to all participants and separately reporting and comparing their scores and correlations on each.

The practical components of concealing a trans identity—such as the limited ability of some trans people to reliably "pass" as their gender and the subsequent heightened risk of involuntary disclosure—were also discussed in various qualitative papers (Chakrapani et al., 2021; Rood et al., 2017) and theoretical definitions (Kim et al., 2023; Wall et al., 2022). A single study included an openness question with a response option labeled "trans identity shows" for participants who felt that their trans identity was visible and unconcealable (Zeluf et al., 2016). Three other papers (two based on the same survey) included questions about the visibility of a participant's trans identity separately from any outness measures. While researchers seemed to recognize the relevance of passing/blending to trans outness decisions, there was no established way to account for this when measuring outness constructs and their effects on mental health. Finally, nonbinary-specific differences in the manifestation of outness, such as the lack of an established gender norm to blend into, received even less attention than the other two issues, being mentioned in just five papers. Only a single study included an outness item specifically targeted at nonbinary participants. Trans outness research may benefit from reporting information regarding participants' perceived blending ability and preferences, and examining how such factors inform outness decisions and affect outness-mental health relationships.

Conclusion

The present review summarized the current body of psychological research regarding the disclosure and concealment of trans identities. It highlighted three unresolved problems in the field: the conceptually distinct strategies of concealing one's gender identity and concealing one's assigned sex, the practical complexity of concealing a trans identity, and the unique manifestation of concealment in nonbinary people. As concealment decisions are frequently motivated by fears of violence, the benefit of research in this field to health and safety in the broader trans community can be immense if it is conducted thoroughly. Despite their inconsistency and conceptual shortcomings, most of the reviewed papers did provide evidence of a negative correlation between concealment and mental health or a positive correlation between disclosure and mental health. While the existence of relationships between disclosure, concealment, and mental health for trans people is not contested, addressing the issues highlighted in this review and establishing consistent, robust definitions and measurement strategies will greatly enhance our understanding of that relationship and ensure that research findings on the topic are rigorous, reliable, and adequately reflect the real lives and attitudes of trans participants. This will allow research to be of practical benefit to the trans community by informing public policy and healthcare standards and providing accurate information to individuals facing their own disclosure and concealment decisions.

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Authors contributions

Study conceptualization, material preparation, data collection and analysis, and the original draft of the manuscript were completed by Lily Osmetti under the supervision of Dr Kachina Allen and Dr Desirée Kozlowski. All authors read and approved the final manuscript.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Positionality statement

The first author is a transgender woman, and all three authors have strong ties to the trans community. All three authors are white Australians, and thus live in a country where gender diversity is not criminalized.

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Data availability statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

References

Afifi, W. A., & Afifi, T. D. (2020). The relative impacts of disclosure and secrecy: The role of (perceived) target response. *Current Opinion in Psychology*, *31*, 94–98. https://doi.org/10.1016/j.copsyc.2019.08.015

Algarin, A. B., Smith, L. R., Pines, H. A., Zapien, M. F., Padilla-Garcia, R., Navarro-Alvarez, S., & Pitpitan, E. V. (2024). The Gender Minority Stress and Resilience Measure: Psychometric Validity for Use in Spanish. *Transgender Health*, *9*(1), 24–33. https://doi.org/10.1089/trgh.2021.0190.

Bethea, M. S., & McCollum, E. E. (2013). The disclosure experiences of male-to-female transgender individuals: A systems theory perspective. *Journal of Couple & Relationship Therapy*, *12*(2), 89–112. https://doi.org/10.1080/15332691.2013.779094

Bosker, M. J. (2002). Assessing level of outness among gay, lesbian, and bisexual individuals and its relation to depression, anxiety, and self-esteem. *Dissertation Abstracts International*, *64*(3), 1482B–1482B.

Bränström, R., & Pachankis, J. E. (2021). Country-level structural stigma, identity concealment, and day-to-day discrimination as determinants of transgender people's life satisfaction. *Social Psychiatry and Psychiatric Epidemiology*, *56*(9), 1537–1545. https://doi.org/10.1007/s00127-021-02036-6

Camacho, G., Reinka, M. A., & Quinn, D. M. (2020). Disclosure and concealment of stigmatized identities. *Current Opinion in Psychology*, *31*, 28–32. https://doi.org/10.1016/j.copsyc.2019.07.031

Chakrapani, V., Scheim, A. I., Newman, P. A., Shunmugam, M., Rawat, S., Baruah, D., Bhatter, A., Nelson, R., Jaya, A., & Kaur, M. (2021). Affirming and negotiating gender in family and social spaces: Stigma, mental health and resilience among transmasculine people in India. *Culture, Health & Sexuality*, *24*(7), 951–967. https://doi.org/10.1080/13691058.2021.1901991

Charter, R., Ussher, J. M., Perz, J., & Robinson, K. H. (2022). Transgender parents: Negotiating "coming out" and gender affirmation with children and co-parents. *Journal of Homosexuality*, *70*(7), 1287–1309. https://doi.org/10.1080/00918369.2021.2020542

Cunningham, G. B., & Pickett, A. C. (2018). Trans prejudice in sport: Differences from LGB prejudice, the influence of gender, and changes over time. *Sex Roles*, *78*(3–4), 220–227. https://doi.org/10.1007/s11199-017-0791-6

de Vries, J. M. A., Downes, C., Sharek, D., Doyle, L., Murphy, R., Begley, T., McCann, E., Sheerin, F., Smyth, S., & Higgins, A. (2023). An exploration of mental distress in transgender people in Ireland with reference to minority stress and dissonance theory. *International Journal of Transgender Health*, *24*(4), 469–486. https://doi.org/10.1080/26895269.2022.2105772

Dhanani, L. Y., & Totton, R. R. (2023). Have you heard the news? The effects of exposure to news about recent transgender legislation on transgender youth and young adults. *Sexuality Research and Social Policy*, *20*(4), 1345–1359. https://doi.org/10.1007/s13178-023-00810-6

Dickey, l m., Hendricks, M. L., & Bockting, W. O. (2016). Innovations in research with transgender and gender nonconforming people and their communities. *Psychology of Sexual Orientation and Gender Diversity*, *3*(2), 187–194. https://doi.org/10.1037/sgd0000158

European Union Agency For Fundamental Rights. (2021). *The EU LGBTI II Survey, 2019* (1.1.0) [dataset]. GESIS Data Archive. https://doi.org/10.4232/1.13733

Exline, J. J., Przeworski, Amy., Peterson, E. K., Turnamian, M. R., Stauner, N., & Uzdavines, A. (2021). Religious and spiritual struggles among transgender and gender-nonconforming adults. *Psychology of Religion and Spirituality*, *13*(3), 276–286. https://doi.org/10.1037/rel0000404

Flentje, A., Clark, K. D., Cicero, E., Capriotti, M. R., Lubensky, M. E., Sauceda, J., Neilands, T. B., Lunn, M. R., & Obedin-Maliver, J. (2021). Minority stress, structural stigma, and physical health among sexual and gender minority individuals: Examining the relative strength of the relationships. *Annals of Behavioral Medicine*, *56*(6), 573–591. https://doi.org/10.1093/abm/kaab051

Flynn, M. K., & Bhambhani, Y. (2021). Internalized transphobia, nondisclosure of gender identity, and life satisfaction among transgender and non-binary adults: The moderating roles of psychological flexibility and inflexibility. *Journal of Contextual Behavioral Science*, *20*, 194–201. https://doi.org/10.1016/j.jcbs.2021.04.008

Flynn, S., & Smith, N. G. (2021). Interactions between blending and identity concealment: Effects on non-binary people's distress and experiences of victimization. *PloS One*, *16*(3), e0248970. https://doi.org/10.1371/journal.pone.0248970

Franke, R., & Leary, M. R. (1991). Disclosure of sexual orientation by lesbians and gay men: A comparison of private and public processes. *Journal of Social and Clinical Psychology*, *10*(3), 262–269. https://doi.org/10.1521/jscp.1991.10.3.262

Fredriksen-Goldsen, K. I., Cook-Daniels, L., Kim, H.-J., Erosheva, E. A., Emlet, C. A., Hoy-Ellis, C. P., Goldsen, J., & Muraco, A. (2014). Physical and mental health of transgender older adults: An at-risk and underserved population. *The Gerontologist*, *54*(3), 488–500. https://doi.org/10.1093/geront/gnt021

Gagné, P., Tewksbury, R., & McGaughey, D. (1997). Coming out and crossing over: Identity formation and proclamation in a transgender community. *Gender & Society*, *11*(4), 478–508. https://doi.org/10.1177/089124397011004006

Goldbach, C., & Knutson, D. (2023). Gender-related minority stress and gender dysphoria: Development and initial validation of the Gender Dysphoria Triggers Scale (GDTS). *Psychology of Sexual Orientation and Gender Diversity*, *10*(3), 383–396. https://doi.org/10.1037/sgd0000548

Haider-Markel, D., Taylor, J., Flores, A., Lewis, D., Miller, P., & Tadlock, B. (2019). Morality politics and new research on transgender politics and public policy. *The Forum*, *17*(1), 159–181. https://doi.org/10.1515/for-2019-0004

Haimson, O. (2019). Mapping gender transition sentiment patterns via social media data: Toward decreasing transgender mental health disparities. *Journal of the American Medical Informatics Association: JAMIA*, *26*(8-9), 749–758. https://doi.org/10.1093/jamia/ocz056

Helsen, V., Enzlin, P., & Gijs, L. (2022). Mental health in transgender adults: The role of proximal minority stress, community connectedness, and gender nonconformity. *Psychology of Sexual Orientation and Gender Diversity*, *9*(4), 466–477. https://doi.org/10.1037/sgd0000530

Hidalgo, M. A., Petras, H., Chen, D., & Chodzen, G. (2019). The gender minority stress and resilience measure: Psychometric validity of an adolescent extension. *Clinical Practice in Pediatric Psychology*, *7*(3), 278–290. https://doi.org/10.1037/cpp0000297

Holloway, B. T., Gerke, D. R., Call, J., Hostetter, C. R., Greenfield, J. C., Atteberry-Ash, B., & Walls, N. E. (2023). "The doctors have more questions for us": Geographic differences in healthcare access and health literacy among transgender and nonbinary communities. *Qualitative Social Work*, *22*(6), 1073–1091. https://doi.org/10.1177/14733250221128000

Huffman, A. H., Mills, M. J., Howes, S. S., & Albritton, M. D. (2021). Workplace support and affirming behaviors: Moving toward a transgender, gender diverse, and non-binary friendly workplace. *International Journal of Transgender Health*, *22*(3), 225–242. https://doi.org/10.1080/26895269.2020.1861575

Hughto, J. M. W., Gunn, H. A., Rood, B. A., & Pantalone, D. W. (2020). Social and medical gender affirmation experiences are inversely associated with mental health problems in a US non-probability sample of transgender adults. *Archives of Sexual Behavior*, *49*(7), 2635–2647. https://doi.org/10.1007/s10508-020-01655-5

Huit, T. Z., Holt, N. R., Farquhar-Leicester, A., Brock, R., Mocarski, R. A., Woodruff, N., & Hope, D. A. (2022). Test–retest reliability and sensitivity of a brief clinical monitoring measure for transgender and gender diverse adults: The Trans Collaborations Clinical Check-In (TC^3). *Psychology of Sexual Orientation and Gender Diversity*. Advance online publication. https://doi.org/10.1037/sgd0000598

Jackman, K., Edgar, B., Ling, A., Honig, J., & Bockting, W. (2018). Experiences of transmasculine spectrum people who report nonsuicidal self-injury: A qualitative investigation. *Journal of Counseling Psychology*, *65*(5), 586–597. https://doi.org/10.1037/cou0000304

Jackson, S. D., & Mohr, J. J. (2016). Conceptualizing the closet: Differentiating stigma concealment and nondisclosure processes. *Psychology of Sexual Orientation and Gender Diversity*, *3*(1), 80–92. https://doi.org/10.1037/sgd0000147

Jäggi, T., Jellestad, L., Corbisiero, S., Schaefer, D. J., Jenewein, J., Schneeberger, A., Kuhn, A., & Garcia Nuñez, D. (2018). Gender minority stress and depressive symptoms in transitioned Swiss transpersons. *BioMed Research International*, *2018*, e8639263–10. https://doi.org/10.1155/2018/8639263

Jardas, E. J., Ladd, B. A., Maheux, A. J., Choukas-Bradley, S., Salk, R. H., & Thoma, B. C. (2023). Testing the minority stress model across gender identity, race, and ethnicity among US gender minority adolescents. *Journal of Psychopathology and Clinical Science*, *132*(5), 542–554. https://doi.org/10.1037/abn0000834.supp

Johnson, A. H. (2016). Transnormativity: A new concept and its validation through documentary film about transgender men. *Sociological Inquiry*, *86*(4), 465–491. https://doi.org/10.1111/soin.12127

Jones, A. K., Wehner, C. L., Andrade, I. M., Jones, E. M., Wooten, L. H., & Wilson, L. C. (2022). Minority stress and posttraumatic growth in the transgender and nonbinary community. *Psychology of Sexual Orientation and Gender Diversity*. Advance online publication. https://doi.org/10.1037/sgd0000610

Kahn, J. H., & Hessling, R. M. (2001). Measuring the tendency to conceal versus disclose psychological distress. *Journal of Social and Clinical Psychology*, *20*(1), 41–65. https://doi.org/10.1521/jscp.20.1.41.22254

Kauten, R. L., Carter, S. P., Stivers, M., Novak, L. A., Baer, M. M., LaCroix, J. M., Grant, N. E., Sickmann, B., Goldston, D. B., Soumoff, A., & Ghahramanlou-Holloway, M. (2022). Post-admission cognitive therapy for a transgender service member with a recent suicidal crisis: A case study of gender-affirming care. *Cognitive and Behavioral Practice*, *30*(2), 273–286. https://doi.org/10.1016/j.cbpra.2021.10.007

Kcomt, L., Evans-Polce, R. J., Boyd, C. J., & McCabe, S. E. (2020). Association of transphobic discrimination and alcohol misuse among transgender adults: Results from the US Transgender Survey. *Drug and Alcohol Dependence*, *215*, 108223. https://doi.org/10.1016/j.drugalcdep.2020.108223

Kim, E., Park, H., Cho, Y., Jeon, K., & An, H. (2023). Invisibility and stigma: Experiences of transgender and gender non-conforming individuals in South Korea. *Archives of Sexual Behavior*, *53*(1), 77–90. https://doi.org/10.1007/s10508-023-02730-3

Kleinemeier, E., Jürgensen, M., Lux, A., Widenka, P.-M., & Thyen, U. (2010). Psychological adjustment and sexual development of adolescents with disorders of sex development. *The Journal of Adolescent Health*, *47*(5), 463–471. https://doi.org/10.1016/j.jadohealth.2010.03.007

Latinus, M., & Taylor, M. J. (2012). Discriminating male and female voices: Differentiating pitch and gender. *Brain Topography*, *25*(2), 194–204. https://doi.org/10.1007/s10548-011-0207-9

Law, C. L., Martinez, L. R., Ruggs, E. N., Hebl, M. R., & Akers, E. (2011). Trans-parency in the workplace: How the experiences of transsexual employees can be improved. *Journal of Vocational Behavior*, *79*(3), 710–723. https://doi.org/10.1016/j.jvb.2011.03.018

Lewis, D. C., Flores, A. R., Haider-Markel, D. P., Miller, P. R., Tadlock, B. L., & Taylor, J. K. (2017). Degrees of acceptance: Variation in public attitudes toward segments of the LGBT community. *Political Research Quarterly*, *70*(4), 861–875. https://doi.org/10.1177/1065912917717352

Lindley, L., Bauerband, L., & Galupo, M. P. (2021). Using a comprehensive proximal stress model to predict alcohol use. *Transgender Health*. Advance online publication. https://doi.org/10.1089/trgh.2020.0042

Lindley, L., & Budge, S. L. (2022). Development and validation of the Trans and Nonbinary Coping Measure (TNCM): A measure of trans and nonbinary specific ways of coping with gender-related stress. *Psychology of Sexual Orientation and Gender Diversity*. Advance online publication. https://doi.org/10.1037/sgd0000618.supp

Lindley, L., & Galupo, M. P. (2020). Gender dysphoria and minority stress: Support for inclusion of gender dysphoria as a proximal stressor. *Psychology of Sexual Orientation and Gender Diversity*, *7*(3), 265–275. https://doi.org/10.1037/sgd0000439

Lloyd, J., Chalklin, V., & Bond, F. W. (2019). Psychological processes underlying the impact of gender-related discrimination on psychological distress in transgender and gender nonconforming people. *Journal of Counseling Psychology*, *66*(5), 550–563. https://doi.org/10.1037/cou0000371

Marques, A. C. (2019). Displaying gender: Transgender people's strategies in everyday life. *Symbolic Interaction*, *42*(2), 202–228. https://doi.org/10.1002/symb.412

Matsuno, E., Bricker, N. L., Collazo, E. N., Mohr, R., & Balsam, K. F. (2022). "The default is just going to be getting misgendered": Minority stress experiences among nonbinary adults. *Psychology of Sexual Orientation and Gender Diversity*. Advance online publication. https://doi.org/10.1037/sgd0000607

McKay, T. R., & Watson, R. J. (2020). Gender expansive youth disclosure and mental health: Clinical implications of gender identity disclosure. *Psychology of Sexual Orientation and Gender Diversity*, *7*(1), 66–75. https://doi.org/10.1037/sgd0000354

Medina, C., & Mahowald, L. (2023). *Discrimination and barriers to well-being: The state of the LGBTQI+community in 2022*. Center for American Progress. https://www.americanprogress.org/article/discrimination-and-barriers-to-well-being-the-state-of-the-lgbtqi-community-in-2022/

Meidlinger, P. C., & Hope, D. A. (2014). Differentiating disclosure and concealment in measurement of outness for sexual minorities: The Nebraska Outness Scale. *Psychology of Sexual Orientation and Gender Diversity*, *1*(4), 489–497. https://doi.org/10.1037/sgd0000080

Meyer, I. H. (1995). Minority stress and mental health in gay men. *Journal of Health and Social Behavior*, *36*(1), 38–56. https://doi.org/10.2307/2137286

Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin*, *129*(5), 674–697.

Mezza, F., Mezzalira, S., Pizzo, R., Maldonato, N. M., Bochicchio, V., & Scandurra, C. (2024). Minority stress and mental health in European transgender and gender diverse people: A systematic review of quantitative studies. *Clinical Psychology Review*, *107*, 102358. https://doi.org/10.1016/j.cpr.2023.102358

Mohr, J., & Fassinger, R. (2000). Measuring dimensions of lesbian and gay male experience. *Measurement and Evaluation in Counseling and Development*, *33*(2), 66–90. https://doi.org/10.1080/07481756.2000.12068999

Moore, E., Wisniewski, A., & Dobs, A. (2003). Endocrine treatment of transsexual people: A review of treatment regimens, outcomes, and adverse effects. *The Journal of Clinical Endocrinology & Metabolism*, *88*(8), 3467–3473. https://doi.org/10.1210/jc.2002-021967

Mouchetant-Rostaing, Y., Giard, M.-H., Bentin, S., Aguera, P.-E., & Pernier, J. (2000). Neurophysiological correlates of face gender processing in humans. *The European Journal of Neuroscience*, *12*(1), 303–310. https://doi.org/10.1046/j.1460-9568.2000.00888.x

Osmetti, L. A., & Allen, K. R. (2023). Predictors of psychological well-being in transgender and gender diverse Australians: Outness, authenticity, and harassment. *Sexuality Research and Social Policy*. Advance online publication. https://doi.org/10.1007/s13178-023-00914-z

Özata Yildizhan, B., Yüksel, Ş., Avayu, M., Noyan, H., & Yildizhan, E. (2018). Effects of gender reassignment on quality of life and mental health in people with gender dysphoria. *Türk Psikiyatri Dergisi*, *29*(1), 1–10.

Pachankis, J. E., Mahon, C. P., Jackson, S. D., Fetzner, B. K., & Bränström, R. (2020). Sexual orientation concealment and mental health: A conceptual and meta-analytic re-

view. *Psychological Bulletin*, *146*(10), 831–871. https://doi.org/10.1037/bul0000271

Pellicane, M. J., & Ciesla, J. A. (2022). Associations between minority stress, depression, and suicidal ideation and attempts in transgender and gender diverse (TGD) individuals: Systematic review and meta-analysis. *Clinical Psychology Review*, *91*, 102113. https://doi.org/10.1016/j.cpr.2021.102113

Pellicane, M. J., Quinn, M. E., & Ciesla, J. A. (2023). Transgender and gender-diverse minority stress and substance use frequency and problems: Systematic review and meta-analysis. *Transgender Health*. Advance online publication. https://doi.org/10.1089/trgh.2023.0025

Pollitt, A. M., Ioverno, S., Russell, S. T., Li, G., & Grossman, A. H. (2021). Predictors and mental health benefits of chosen name use among transgender youth. *Youth & Society*, *2019*(2), 320–341. https://doi.org/10.1177/0044118X19855898

Puckett, J. A., Huit, T. Z., Hope, D. A., Mocarski, R., Lash, B. R., Walker, T., Holt, N., Ralston, A., Miles, M., Capannola, A., Tipton, C., Juster, R.-P., & DuBois, L. Z. (2024). Transgender and gender-diverse people's experiences of minority stress, mental health, and resilience in relation to perceptions of sociopolitical contexts. *Transgender Health*, *9*(1), 14–23. https://doi.org/10.1089/trgh.2022.0047

Riggle, E. D. B., Rostosky, S. S., McCants, L. E., & Pascale-Hague, D. (2011). The positive aspects of a transgender self-identification. *Psychology and Sexuality*, *2*(2), 147–158. https://doi.org/10.1080/19419899.2010.534490

Riggs, D. W., & Treharne, G. J. (2017). Decompensation: A novel approach to accounting for stress arising from the effects of ideology and social norms. *Journal of Homosexuality*, *64*(5), 592–605. https://doi.org/10.1080/00918369.2016.1194116

Rood, B. A., Maroney, M. R., Puckett, J. A., Berman, A. K., Reisner, S. L., & Pantalone, D. W. (2017). Identity concealment in transgender adults: A qualitative assessment of minority stress and gender affirmation. *The American Journal of Orthopsychiatry*, *87*(6), 704–713. https://doi.org/10.1037/ort0000303

Ruggs, E. N., Martinez, L. R., Hebl, M. R., & Law, C. L. (2015). Workplace "trans"-actions: How organizations, coworkers, and individual openness influence perceived gender identity discrimination. *Psychology of Sexual Orientation and Gender Diversity*, *2*(4), 404–412. https://doi.org/10.1037/sgd0000112

Salvatore, L., Dancyger, I., Shadianloo, S., & Fornari, V. (2022). Caring for transgender youth with eating disorders in a day treatment program. *Adolescent Psychiatry*, *12*(3), 196–206. https://doi.org/10.2174/2210676613666221027124554

Scandurra, C., Bochicchio, V., Dolce, P., Caravà, C., Vitelli, R., Testa, R. J., & Balsam, K. F. (2020). The Italian validation of the gender minority stress and resilience measure. *Psychology of Sexual Orientation and Gender Diversity*, *7*(2), 208–221. https://doi.org/10.1037/sgd0000366.

Scandurra, C., Amodeo, A. L., Bochicchio, V., Valerio, P., & Frost, D. M. (2017). Psychometric characteristics of the Transgender Identity Survey in an Italian sample: A measure to assess positive and negative feelings towards transgender identity. *International Journal of Transgenderism*, *18*(1), 53–65. https://doi.org/10.1080/15532739.2016.1241975

Srivastava, A., Rusow, J. A., & Goldbach, J. T. (2021). Differential risks for suicidality and mental health symptoms among transgender, nonbinary, and cisgender sexual minority youth accessing crisis services. *Transgender Health*, *6*(1), 51–56. https://doi.org/10.1089/trgh.2020.0034

Strain, J. D., & Shuff, I. M. (2010). Psychological well-being and level of outness in a population of male-to-female transsexual women attending a national transgender conference. *International Journal of Transgenderism*, *12*(4), 230–240. https://doi.org/10.1080/15532739.2010.544231

Suen, L. W., Lunn, M. R., Katuzny, K., Finn, S., Duncan, L., Sevelius, J., Flentje, A., Capriotti, M. R., Lubensky, M. E., Hunt, C., Weber, S., Bibbins-Domingo, K., & Obedin-Maliver, J. (2020). What sexual and gender minority people want researchers to know about sexual orientation and gender identity questions: A qualitative study. *Archives of Sexual Behavior*, *49*(7), 2301–2318. https://doi.org/10.1007/s10508-020-01810-y

Taube, L. N., & Mussap, A. J. (2022). Coming out to family and friends in the trans and gender diverse context. *Journal of Homosexuality*, *71*(1), 147–165. https://doi.org/10.1080/00918369.2022.2106465

Taylor, J., Zalewska, A., Gates, J. J., & Millon, G. (2019). An exploration of the lived experiences of non-binary individuals who have presented at a gender identity clinic in the United Kingdom. *The International Journal of Transgenderism*, *20*(2-3), 195–204. https://doi.org/10.1080/15532739.2018.1445056

Tebbe, E. A., Simone, M., Wilson, E., & Hunsicker, M. (2022). A dangerous visibility: Moderating effects of antitrans legislative efforts on trans and gender-diverse mental health. *Psychology of Sexual Orientation and Gender Diversity*, *9*(3), 259–271. https://doi.org/10.1037/sgd0000481

Testa, R. J., Habarth, J., Peta, J., Balsam, K., & Bockting, W. (2015). Development of the gender minority stress and resilience measure. *Psychology of Sexual Orientation and Gender Diversity*, *2*(1), 65–77. https://doi.org/10.1037/sgd0000081

Testa, R. J., Michaels, M. S., Bliss, W., Rogers, M. L., Balsam, K. F., & Joiner, T. (2017). Suicidal ideation in transgender people: Gender minority stress and interpersonal theory factors. *Journal of Abnormal Psychology*, *126*(1), 125–136. https://doi.org/10.1037/abn0000234

Thoma, B. C., Jardas, E., Choukas-Bradley, S., & Salk, R. H. (2023). Perceived gender transition progress, gender congruence, and mental health symptoms among transgender adolescents. *The Journal of Adolescent Health*, *72*(3), 444–451. https://doi.org/10.1016/j.jadohealth.2022.09.032

Thoma, B. C., Salk, R. H., Choukas-Bradley, S., Goldstein, T. R., Levine, M. D., & Marshal, M. P. (2019). Suicidality disparities between transgender and cisgender adolescents. *Pediatrics*, *144*(5), e20191183. https://doi.org/10.1542/peds.2019-1183

To, M., Zhang, Q., Bradlyn, A., Getahun, D., Giammattei, S., Nash, R., Owen-Smith, A. A., Roblin, D., Silverberg, M. J., Tangpricha, V., Vupputuri, S., & Goodman, M. (2020). Visual conformity with affirmed gender or "passing": Its distribution and association with depression and anxiety in a cohort of transgender people. *The Journal of Sexual Medicine*, *17*(10), 2084–2092. https://doi.org/10.1016/j.jsxm.2020.07.019

Ünsal, B. C., Demetrovics, Z., & Reinhardt, M. (2023). Stronger together: Community participation, structural stigma, and depression among sexual and gender minority adults in 28 European countries. *Social Psychiatry and Psychiatric Epidemiology*, *58*(4), 657–669. https://doi.org/10.1007/s00127-022-02385-w

Uysal, A. (2020). Motivational differences and similarities between concealment and disclosure processes. *Current Opinion in Psychology*, *31*, 122–126. https://doi.org/10.1016/j.copsyc.2019.08.011

van de Grift, T. C. (2023). Condition openness is associated with better mental health in individuals with an intersex/differences of sex development condition: Structural equation modeling of European multicenter data. *Psychological Medicine*, *53*(6), 2229–2240. https://doi.org/10.1017/S0033291721004001

Veritas Health Innovation, Covidence systematic review software, Melbourne, Australia, 2023, https://www.covidence.org/

Wall, C. S. J., Mason, K. L., Smout, S. A., O'Neill, K. A., Carrico, M. A., & Benotsch, E. G. (2022). Having a community helps: Environmental context influences the relationship between outness and psychological distress in transgender and gender diverse populations. *Stigma and Health*, *7*(4), 414–422. https://doi.org/10.1037/sah0000409

Watson, L. B., Allen, L. R., Flores, M. J., Serpe, C., & Farrell, M. (2019). The development and psychometric evaluation of the Trans Discrimination Scale: TDS-21. *Journal of Counseling Psychology*, *66*(1), 14–29. https://doi.org/10.1037/cou0000301.

White Hughto, J. M., Murchison, G. R., Clark, K., Pachankis, J. E., & Reisner, S. L. (2016). Geographic and individual differences in healthcare access for U.S. transgender adults: A multilevel analysis. *LGBT Health*, *3*(6), 424–433. https://doi.org/10.1089/lgbt.2016.0044

Wilson, L. C., Newins, A. R., Kassing, F., & Casanova, T. (2023). Gender minority stress and resilience measure: A meta-analysis of the associations with mental health in transgender and gender diverse individuals. *Trauma, Violence & Abuse*, *25*(3), 2552–2564. https://doi.org/10.1177/15248380231218288

Yang, X., Wang, L., Gu, Y., Song, W., Hao, C., Zhou, J., Zhang, Q., & Zhao, Q. (2016). A cross-sectional study of associations between casual partner, friend discrimination, social support and anxiety symptoms among Chinese transgender women. *Journal of Affective Disorders*, *203*, 22–29. https://doi.org/10.1016/j.jad.2016.05.051

Zeluf, G., Dhejne, C., Orre, C., Mannheimer, L. N., Deogan, C., Höijer, J., Thorson, A. E., Nilunger Mannheimer, L., & Ekéus Thorson, A. (2016). Health, disability and quality of life among trans people in Sweden-a web-based survey. *BMC Public Health*, *16*(1), 1085. https://doi.org/10.1186/s12889-016-3560-5

Zhou, Y., Furutani, M., Athurupana, R., & Nakatsuka, M. (2021). Relation between identity disclosure to family members and mental health in Japanese transgender people. *Acta Medica Okayama*, *75*(5), 611–623. https://doi.org/10.18926/AMO/62774

Appendix A: Search strategy for APA PsycINFO

	Field	Query
S1	Index terms	"Transgender" OR "Transsexualism" OR "Gender Transition" OR "Gender Reassignment" OR "Gender Affirming Care" OR "Gender Nonbinary" OR "Gender Nonconforming" OR "Two-Spirit" OR "Intersex"
S2	Title, abstract, and keywords	"transgender*" OR "transexual*" OR "transsexual*" OR "trans people" OR "trans men" OR "trans women" OR "trans*men" OR "transfem*" OR "transmasc*" OR "trans spectrum" OR "gender diverse" OR "TGD" OR "TGNB" OR "gender minorit*" OR "gender nonconforming" OR "gender non-conforming" OR "nonbinary" OR "non-binary" OR "genderfluid" OR "gender-fluid" OR "genderqueer" OR "gender-queer" OR "two-spirit" OR "intersex"
S3	Index terms	"Coming Out"
S4	Title, abstract, and keywords	"outness" OR "disclos*" OR "nondisclos*" OR "conceal*" OR "openness" OR "closet*" OR "coming out"
S5	Index terms	"Mental Health" OR "Emotional Health" OR "Mental Disorders" OR "Affective Disorders" OR "Well Being" OR "Life Satisfaction" OR "Quality of Life" OR "Mental Status" OR "Self-Stigma" OR "Major Depression" OR "Anxiety" OR "Distress" OR "Gender Dysphoria" OR "Suicidal Behavior" OR "Attempted Suicide" OR "Suicidal Ideation" OR "Suicide" OR "Nonsuicidal Self-Injury"
S6	Title, abstract, and keywords	("mental" OR "psychological" OR "behavioral" OR "behavioral" OR "affective" OR "mood") N0 ("health" OR "wellbeing" OR "well-being" OR "illness" OR "suffer*" OR "adjustment" OR "disorder*") OR "distress*" OR "emotion*" OR "mood*" OR "affect" OR "depress*" OR "anxi*" OR "dysphoria" OR "suicid*" OR "self-injur*" OR "self-harm" OR "NSSI" OR "life satisfaction" OR "quality of life"
S7		S1 OR S2
S8		S3 OR S4
S9		S5 OR S6
S10		S7 AND S8 AND S9

Appendix B: Content of data charting template

- **Publication details**
  - Authors
  - Year of online publication
  - Year of print publication
  - Title
  - Journal
- **Research details**
  - **Definitions**
    - Concealment/outness is included as…
      - main subject of study
      - part of broader focus on minority stress
      - demographic/control variable
      - theme identified during analysis
    - How, if at all, do the researchers define concealment/outness?
  - **Participants**
    - Country in which study was conducted
    - Gender identity of participants
    - Average age of sample, if given
    - Other defining characteristics, if given
    - Dates of data collection, if given
    - Method(s) of participant recruitment
  - **Methodology**
    - Type of research (qualitative, quantitative, etc.)
    - Study design (cross-sectional survey, interviews, etc.)
    - "Object of outness" (gender identity, assigned sex, etc.)
    - Outness variables measured
    - Phrasing of prompts (original or modified items)
    - Outness measurement strategy (frequency of certain behaviors, degree of outness separated by context, etc.)
    - Mental health variables measured
    - Time period specified by mental health prompts
    - Other variables measured
  - **Findings**
    - Key findings related to outness and mental health
    - What significant relationships were found?
    - Effect size
    - Relevance of this paper to the present review
  - **Complications**
    - Distinction of assigned sex and gender identity concealment was…
    - Practical complications to concealment were…
    - Aspects of concealment unique to nonbinary people were…
      - Not relevant
      - Not mentioned
      - Recognized/discussed
      - Reflected in the study design
    - Limitations identified by authors
    - Limitations not identified by authors
    - Possible conflicts of interest

Appendix C: Mental health tools

CES-D = *Center for Epidemiologic Studies-Depression*, PSS = *Perceived Stress Scale*, PC-PTSD = *Primary Care PTSD Screen*, SWLS = *Satisfaction with Life Scale*, MPFI = *Multidimensional Psychological Flexibility Inventory*, K6 or K-10 = *Kessler Psychological Distress Scale*, GHQ-12 = *General Health Questionnaire*, YI = *Youth Inventory*, PTGI-S = *Posttraumatic Growth Inventory*, AUDIT = *Alcohol Use Disorders Identification Test*, DASS-21 = *The Depression Anxiety Stress Scales*, GCLS = *The Gender Congruence and Life Satisfaction Scale*, PROMIS = *Patient-Reported Outcomes Measurement Information System*, SMDA = *Severity Measure for Depression*, SMGD = *Severity Measure for Generalized Anxiety Disorder*, BuAI = *Burns Anxiety Inventory*, HHH = *Helplessness, Hopelessness, and Haplessness Scale*, SBI = *Sense of Belonging Instrument*, SPIN = *The Social Phobia Inventory*, SIS = *Suicidal Ideation Scale*, INQ-12 = *Interpersonal Needs Questionnaire*, HADS = *Hospital Anxiety and Depression Scale*, RSES = *Rosenberg Self-Esteem Scale*, WHOQOL = *World Health Organization Quality of Life*, GAD-7 = *General Anxiety Disorder-7*, KADS = *Kutcher Adolescent Depression Scale*, PWBS = *Psychological Well-Being Scale*, T-PIM = *Transgender Positive Identity Measure*, BDI-II = *Beck Depression Inventory*, BeAI = *Beck Anxiety Inventory*, PWI-A = *Personal Wellbeing Index-Adult*, SAS = *Zung Self-Rating Anxiety Scale*