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Frequency and determinants of belief and lack of belief in gender identity in representative UK and US samples

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Short Report

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Abstract

Questions about ‘gender identity’ are frequently included in demographic and monitoring questionnaires and the term is used frequently in conversation and research. However, its meaning in often uncertain, ranging from a euphemism for sex to an ‘internal sense of gender’, or a combination of levels of masculinity/femininity and beliefs about one’s sex and presentation. Given differences and uncertainties in the definition of gender identity, this research assessed frequency and determinants of belief and lack of belief in having a gender identity. Three representative samples from the UK (*N* = 302 & 300) and the US (*N* = 301) (ages 18–87; 431 males, 472 females), recruited via Prolific, were presented with 15 sets of questions. Each set included a factual biographic question (e.g., interest in sports), a question on presence or absence of an identity related to the biography question, and an importance rating of that identity if present. A response of ‘No’ to the question ‘Do you have a gender identity?’ was given by 23.6% and 21.1% of the UK samples, and 20.3% of the US sample. Gender identity was more likely to be affirmed by females (OR = 1.97) and by those who hold strong critical social justice attitudes (OR = 1.33). Importance of one’s gender identity was rated more highly by females (OR = 1.97). Future research should investigate the different understandings individuals have of the term gender identity and longitudinally assess societal changes in incidence of belief or lack of belief in gender identity.

Introduction

Questions about ‘gender identity’ are often included in demographic and monitoring questionnaires and the term is used frequently in conversation and in formal and less formal published formats, and in scientific research. However, its meaning is sometimes uncertain and definitions can be contradictory. One definition is knowledge of one’s sex and the awareness of being male or female (Byrne, 2023). Another is ‘the individual’s sense of what gender category [or categories] is an authentic statement of who they are’ (Hyde et al., 2019, p.181 [Brackets in original]), such as ‘a boy, a man, or male; a girl, a woman, or female; or a nonbinary gender (e.g., genderqueer, gender-neutral, agender, gender-fluid, transgender)’ (American Psychological Association, 2026). It can also be defined in terms of personality, such as ‘a deeply felt, internal sense of who you are on a spectrum of masculinity, femininity, and androgyny’ (Therapist.com, 2025). Given the variety of definitions and contradictions between them, this study aimed to assess whether some participants would state that they do not have a gender identity, and to investigate predictors of such a response.

Psychometric measures of gender identity

Wood and Eagly (2015) distinguish two traditions of psychological research on gender identity, one based on personality, specifically masculinity and femininity, the second based on self-assignment to categories, which include male, female and other categories. The latter tradition is seen in gender identity measures by Joel et al. (2014), Ho and Mussap (2019), and Zucker et al. (1993), with assignment or ratings such as feeling like or identifying as a man/boy or a woman/girl, but with no direct reference to masculinity/femininity. The former personality tradition is then combined with self-assignment in other measures, such as the items ‘I try to do things that are masculine and feminine at the same time’ and ‘I enjoy it when people are not sure if I am male or female’ in the Genderqueer Identity Scale (McGuire et al., 2019, p.300), which ‘was designed to assess gender identity across a full spectrum of gender’ (p.289). Zucker et al. (2006) similarly have a composite measure in the 23-item Recalled Childhood Gender Identity/Gender Expression questionnaire, which uses a combination of masculinity/femininity, recalled gender-typed behavior, and recall of gender of friends and favourite playmate at school. Lindqvist et al. (2021) likewise recommend obtaining masculinity/femininity self-ratings as well as gender identity categories, and Fraser’s (2018, p.347) use of one open-ended question ‘What is your gender identity?’, allows for self-categorization and consideration of masculinity/femininity.

There is thus a variety of scales used to measure or categorize gender identity. Issues with this are highlighted by Fisher et al. (2025), who state that gender identity has ‘a wide range of measures and constructs including both self-report and researcher observations of preferences and behaviours. … gender identity measures are rarely found to correlate with one another, and contrasting patterns and trajectories are often found for each construct’ (p.319). These issues are also found in philosophical approaches to gender identity.

Philosophical approaches to gender identity

Jenkins (2018, p.714) cautions that the definition of gender identity as ‘a sense of oneself as a man, woman, or some other gender’ doesn’t define what this ‘sense’ is, and can lead to circularity, if, for example, ‘to be a man *is* to identify as a man (or, to have a male gender identity)’. Jenkins (2018) proposes a ‘norm-relevancy account’ (p.728), in which someone has a particular gender identity if they experience certain gender norms as relevant to them. Similarly, McKitrick (2015) describes gender as a complex behavioural disposition, or cluster of dispositions, in which one is prone to act in certain ways in certain circumstances. Gender for women, for example, is a disposition to behave as women are expected to behave. In response to the objection that some males are effeminate without being women, McKitrick states:

recall that gender is a matter of degree on this account. Do the effeminate males in question have “sufficiently many sufficiently strong dispositions” to behave in ways that are considered womanly by the relevant social group? If not, perhaps the man’s behavior is more toward the feminine end of the spectrum than most males in the relevant context, but not so far as to be considered a woman. (p.2586)

There is a circularity in definitions here, as well as reification of behaviours and dispositions into internal gender identity categories. Doubt about any reality to a single reified gender identity is raised by Briggs and George (2023), for whom ‘there is no one thing that answers to the name “gender” (or, for that matter, to the name “gender identity”)’ (p.2), because for some people it includes ‘conceptual tensions, apparent contradictions, and

metaphysical vagaries' (p.3), and '"Gender" doesn't pick out any one thing; it equivocates among many' (p.5), such that 'the concept of "gender identity" is itself an unhelpful oversimplification' (p.14).

These philosophical issues with the term gender identity reinforce the notion that some people may hence state that they do not have a gender identity.

Public understanding of gender identity

When asked about one's gender identity some people may respond in terms of their sex, seeing the term as a polite euphemism, others in terms of some or all of the definitions or components explored above (Bogardus, 2026; Byrne, 2020). Gender identity may also be seen as an unclearly defined heuristic, with some people putting emphasis on some of its components, others on different components, but having some vague understanding, or even mistaken understanding (Biggs, 2024), of what it means. However, some may take the view that the definitions of gender identity are contradictory, nebulous and circular, or may disagree with political or cultural consequences of the term, even seeing gender as a system of oppression rather than as a matter of identity (Jeffreys, 2014; Todd, 2024). There may also be people who score low on masculinity and low on femininity (Bem, 1974), termed undifferentiated androgynous (McDermott, 2016), who might be less inclined to think of themselves in gendered terms, even if they know and acknowledge their sex.

Given these debates and differences in understanding of the term it might be expected that some people would answer 'no' if asked whether they have a gender identity, even though there is an implicit assumption socially and in the literature that everyone has a gender identity. In many jurisdictions gender identity is a legally protected characteristic, and so people are expected or even required to classify themselves in these terms. However, in the UK, under the Equality Act (2010), gender identity is not a protected characteristic, whereas biological sex is (Foran, 2026). Furthermore, lack of belief in gender and lack of belief in gender identity fall under section 10 of the Equality Act as protected lack of belief (Maya Forstater v CGD Europe and Others, 2021, para 106, p.51). The research question thus arises of the prevalence of individuals who hold that they do not have a gender identity.

Conceptualisation and assessment of identities

This research is predicated on the model that although individuals have many characteristics, such as age and sporting activities, identities are chosen and involve commitment (Ellemers et al., 2002). This factual propositional versus voluntary identity distinction is detailed by Westra (2023). The studies thus present to participants 15 factual biographic questions, each followed by a question on the presence or absence of an identity related to that biographic question. One biographic question asks for the participant's sex, followed by a question about whether the participant has or doesn't have a gender identity. The sex / gender identity questions were presented second or last in the series of 15 question sets, to test whether repeated prior consideration of identities decreases the likelihood of assenting to a gender identity.

Sex, critical social justice attitudes, and gender identity

Lahtinen (2024) found that females are more likely to hold gender-based Critical Social Justice Attitudes (CSJA) and so we hypothesised that females are more likely to assent to a gender identity than are males. As beliefs about the mutability and importance of gender were shown by Lahtinen (2024) to be associated with overall score on his CSJA scale, we also hypothesised that higher CSJA scorers are more likely to assent to having a gender identity.

Hypotheses

H1 Some participants will state that they do not have a gender identity.

H2 Participants repeatedly cued with questions about the presence or absence of various identities will be less likely to then report a gender identity than those not repeatedly cued prior to the gender identity question.

H3 Females will be more likely than males to assent to a gender identity.

H4 CSJA score will predict assenting to a gender identity.

H5 Number of other identities affirmed will predict assenting to gender identity.

H6 Conservatives are less likely to assent to a gender identity than those with other political affiliations.

H1, H2 and H3 were tested in Studies 1, 2 and 3; H4, H5 and H6 were tested in Studies 2 and 3.

On an exploratory basis, we also consider predictors of importance ratings of one's gender identity, for participants with a gender identity.

Method

Preregistration

Study 1 was preregistered as https://aspredicted.org/G5X_S42. Studies 2 and 3 were preregistered as https://aspredicted.org/6nn8-5cb8.pdf

Participants

Participants for three studies, each representative for age and sex, were recruited from the UK and US using Prolific. Study 1 (UK) was also representative for ethnicity, Study 2 (UK) for political affiliation, and Study 3 (US) for political affiliation and ethnicity. Prolific provided political affiliation data for each participant in Studies 2 and 3, and ethnicity data for each participant in Study 3. Demographic details are presented in Table 1.

Table 1
Demographics for the Three Samples

Study 1	Country	*N*	Mean age	*SD* age	Min age	Max age	Male *n*	Female *n*
	UK	**302**	**46.45**	**15.74**	**18**	**80**	**141**	**161**
Study 2	UK	300	46.27	15.95	18	87	143	157
Study 3	US	301	44.50	15.53	18	78	147	154

[Table 1]

Materials and Procedure

Participants were given the definition of identity as 'your view of yourself, or how you think of yourself, and an essential ingredient of who you are.' (From Burke & Stets, 2023, pp.41 & 172.) They were also told 'How I identify myself has a bearing on how I define my interests. How I define my interests may encourage me to identify myself in particular ways.' (Jenkins, 2014, p.8.) Participants were instructed that they would be rating the importance of each of their identities by considering three components of identity: support, commitment and reward (from Burke & Stets, 2023, p.43; commitment is also a characteristic of identity in Ellemers et al., 2002).

The study questionnaire was then presented to participants. Participants were first asked to state in free-form format their five most important identities. The instructions were: 'Firstly, please think about your life, your self, your roles, your personality, characteristics, interests, beliefs, history, how people see you. Please write here your five most important identities.' After responding, participants were next presented with 15 sets of questions, each set comprising a factual biographic question (e.g., whether one has an interest in sports), followed by a Yes/No question asking whether the participant has an identity corresponding to the biographic question. Appendix 1 in the Supplementary Materials reports the full list of questions. Most sets of questions also asked the participant to state the identity, if they had assented to having one. They then rated how important the identity is to them on a 5-point scale: 0 = not at all important; 1 = a little important; 2 = somewhat important; 3 = very important; 4 = extremely important.

The sex and gender question set first asked 'What is your biological or legal sex?', with response options Male or Female. Participants were next asked 'Do **you** have a **gender identity**?', with response options Yes or No. If they responded Yes, they were presented with the instruction: 'Please state here what your gender identity is.' After responding they rated the importance of this identity using the 5-point scale. For each participant the sex and gender question set was either placed second or last in the series, by random allocation.

Finally, the 7 items of the Lahtinen (2024) CSJA scale were responded to on a 5-point scale, with 1 = "completely disagree" and 5 = "completely agree". Items included topics such as causes of ethnic differences in income, diversity of authors on university reading lists, challenging of microaggressions, and trans women in sports. The list of CSJA items and the item mean scores are reported in Supplementary Table 1. The CSJA scale was not included in Study 1.

Results

Table 2 shows the responses to the gender identity question for each study (top panel), for where the gender identity question was asked second versus asked last in the list of questions (middle panel), and for male and female participants analysed separately (bottom panel). Approximately 21% of participants stated that they do not have a gender identity, confirming hypothesis 1. There was no significant difference in the split of Yes/No responses between the studies in response to the gender identity question, $\chi^2(2) = 1.07$, $p = .587$. The data from the three studies are thus combined for analyses. There was no significant difference in response to the gender identity question between those who were presented the question second versus last in the series of question sets ($\chi^2(1) = 0.46$, $p = .499$). Hypothesis 2 was thus not confirmed. Confirming hypothesis 3, females were significantly more likely to state that they have a gender identity than were males, $\chi^2(1) = 17.65$, $p < .001$. In all three studies females were more likely to claim a gender identity than were males. See Supplementary Table 2 for gender identity responses for UK and US samples.

Table 2
Responses to the Gender Identity Question for each Study (Top Panel), for Where the Gender Identity Question was Asked Second Versus Asked Last in the List of Questions (Middle Panel), and for Male and Female Participants Analysed Separately (Bottom Panel)

	Do you have a gender identity?		
	Yes	**No**	**% 'No'**
Study 1[a]	230	71	23.5
Study 2[a]	236	63	21.0
Study 3	240	61	20.3
Total	706	195	21.6
Gender identity question asked second[b]	350	102	22.5
Gender identity question asked last	356	93	20.7
Male[a]	311	119	27.6
Female[a]	395	76	16.1
Notes: [a] One participant did not answer 'Do you have a gender identity?'			
[b] Two participants did not answer 'Do you have a gender identity?'			

[Table 2]

The gender identities reported by 706 participants are listed in Supplementary Table 3. Most responded with male or female (70.7%), followed by man/boy or woman/girl (11.9%), then non-binary (0.8%), queer/gender queer (0.3%), and trans man or trans woman (0.4%). Others included an attribute with male or female (6.0%) or with man or woman (3.0%), e.g., 'non-girlie woman'; 'woman feminine'; 'Male, supports family'. In contrast, Table 3 shows that sex or gender-based identities were reported only rarely by participants when asked to state their five most important identities at the start of the questionnaire.

Table 3
Number of Participants who Included or did not Include Categories of Sex- or Gender-Based Identity in Their Five Most Important Identities Stated at the Start of the Questionnaire

	Stated		**Not stated**	
	N	**%**	***N***	**%**
Male or female	31	3.4%	872	96.6%
Man or woman [a]	78	8.6%	825	91.4%
Sex or gender-based relation [b]	405	44.9%	498	55.1%
Genderqueer [c]	25	2.8%	878	97.2%
Sexual orientation [d]	9	1.0%	894	99.0%
Gay	24	2.7%	879	97.3%
Notes: Examples of category membership: [a] man, woman, man of God, sportsman;				
[b] father, mother, aunt, grandmother, cat dad; [c] genderqueer, queer;				
[d] heterosexual, bisexual, homosexual.				

[Table 3]

Predictors of presence / absence of gender identity and importance of gender identity

As reported above, the hypothesis of lack of gender identity being more likely to occur after repeated questioning about presence or absence of identities was not confirmed. A question remained, however, whether individual differences in responses to the repeated identity questions would be

correlated with response to the gender identity question. We found that presence/absence of gender identity was significantly associated with the number of affirmative answers to the other identity questions: With gender identity question presented second, $r(451) = .17$, $p < .001$; when presented last, $r\ (448) = .16$, $p < .001$. (The correlation coefficients did not change when sex was partialled out.) Thus, the fewer identities participants affirmed the less likely they were to affirm a gender identity. However, as there was no difference in the magnitude of the correlation between the presentation orders, repeated negative responses to identity questions were not causing a negative response to the gender identity question.

Table 4 reports descriptive statistics for the total number of affirmative responses to the other identity questions, mean importance of those identities, importance of gender identity, and CSJA score.

Table 4
Descriptive Statistics for Critical Social Justice Attitudes, Mean Total Number and Mean Importance of Identities Other Than Gender Identity, and Mean Importance of Gender Identity

CSJ scale	**Mean**	***SD***	**Min**	**Max**	***N***
	2.91	**0.82**	**1**	**5**	**601**
Total # identities	5.99	2.71	0	14	903
Importance of identities	3.42	0.69	1	5	896
Importance of gender identity	3.94	1.10	1	5	706

Notes: Females scored significantly higher than males on Critical Social Justice score ($r(599) = .18$, $p < .001$) but not on number of other identities ($r(901) = .04$, $p = .271$) nor on importance of other identities ($r(894) = .07$, $p = .051$). Gender identity was rated as significantly more important than mean importance of the other identities, paired-sample t-test, $t(701) = 12.87$, $p<.001$. Item scores for other identities and number of other identities frequency table are presented in Supplementary Tables 4 and 5.

[Table 4]

Females rated their gender identity as more important than did males ($r(704) = .22$, $p < .001$). Controlling for sex, age had a significant partial correlation with importance of one's gender identity ($r(702) = .12$, $p = .002$) but not with presence / absence of gender identity ($r(897) = -.01$, $p = .824$). Supplementary Table 6 shows that there was no significant association in the UK sample between political affiliation and whether a person states they have/do not have a gender identity. Supplementary Table 7 shows that in the US sample there was a significant association between gender identity and political affiliation, with Republicans more likely to say they have a gender identity than do Democrats. Hypothesis 6 was thus not confirmed.

Table 5 shows binary logistic regression statistics for variables predicting presence / absence of gender identity. Females, and high scorers on CSJA and on number of other identities, were more likely to assert a gender identity. Hypotheses 3, 4 and 5 were thus confirmed. The model was statistically significant, $\chi^2(df = 4, n = 600) = 29.23$, $p < .001$, explaining between 4.8% (Cox & Snell R^2) and 7.4% (Nagelkerke R^2) of variance in gender identity and correctly identifying 79.2% of cases.

Table 5
Logistic Regression Predictors of Presence/Absence of Gender Identity: Sex, CSJA Score, Total Number of Identities Affirmed on the Other Identity Questions, and Study (UK/US). OR = Odds Ratio

	B	**SE**	**Wald**	**df**	***p***	**OR**	**95% CI OR**	
							LL	**UL**
Sex	.68	.21	10.07	1	.002	1.97	1.30	2.98
CSJA	.28	.13	4.57	1	.033	1.32	1.02	1.69
Total identities	.13	.04	10.13	1	.001	1.14	1.05	1.23
Study (UK/US)	.02	.21	0.01	1	.909	1.02	0.68	1.54
Constant	-1.24	.72	2.96	1	.085	0.29		

Notes: Gender identity is coded present = 1, absence = 0; sex is coded male = 1, female = 2.

[Table 5]

Table 6 shows ordinal regression statistics for variables predicting importance of gender identity. Females and high scorers on number and importance of other identities gave significantly higher ratings of the importance of their gender identity. However, CSJA score was inversely related to importance of gender identity. The model was statistically significant, $\chi^2(df = 6, n = 472) = 120.20$, $p < .001$, explaining between 22.5% (Cox & Snell R^2) and 24.1% (Nagelkerke R^2) of variance in self-rated importance of gender identity.

Table 6

Ordinal Regression Predictors of Self-Rated Importance of one's Gender Identity, for all Participants who Reported a Gender Identity: Sex, CSJA Score, Total Number of Identities Affirmed on the Other Identity Questions, Mean Importance of the Other Affirmed Identities, Age, and Study (UK/US). OR = Odds Ratio

	B	**SE**	**Wald**	**df**	***p***	**OR**	**95% CI OR**	
							LL	**UL**
Sex	0.68	.18	14.17	1	< .001	1.97	1.38	2.80
CSJA	-0.52	.11	20.33	1	< .001	0.60	0.48	0.75
Total other identities	0.16	.03	20.33	1	< .001	1.17	1.10	1.25
Mean importance other identities	1.05	.14	57.30	1	< .001	2.85	2.17	3.73
Age	0.00	.01	0.02	1	.889	1.00	0.99	1.01
Study (UK/US)	0.18	.18	0.97	1	.324	1.19	0.84	1.69
Notes: Sex is coded male = 1, female = 2. Test of parallel lines was non-significant: $\chi^2(18) = 27.93$, p = .063.								

[Table 6]

Discussion

Across three representative UK and US samples approximately 21% of participants stated that they do not have a gender identity. Gender identity was more likely to be affirmed by females. This may be because females have a stronger belief in the contested concept of gender identity than do males. The basis for this moral or political belief in or acceptance of gender identity may be that females have higher concerns for care, fairness and purity in their moral judgements than do men (Atari et al. 2020), are more agreeable in their self-descriptions (Schmitt et al., 2008), and are more empathic (Romero et al., 2026) and concerned for the effects of words and speech on others (Pratt et al., 2026). This may lead to greater acceptance of expectations about having a gender identity, as well as acceptance when it is claimed by others. This may be augmented by females scoring higher on sensory processing sensitivity than males, this sensitivity encompassing facets including empathy, and sensitivity to one's own physical and mental sensations and to those of others (Aron & Aron, 1997). Presence/absence of gender identity was also associated with number of other identities affirmed, indicating a relationship to thinking of oneself in general in identity terms, but there was no sex difference in number of other identities affirmed.

Having a gender identity was more likely to be affirmed by those scoring high on Critical Social Justice Attitudes. It may be that hard-nosed low CSJA individuals might disbelieve the notion of gender identity, and deny having one, in contrast to progressive social justice-minded individuals for whom gender identity is part of a general sociopolitical belief system. It is intriguing, however, that for those who stated they have a gender identity, it was rated as being more important by those with lower CSJA scores. We speculate that assent to gender identity may be divided between those who interpret it biologically, and who may be proud of their sex and of expectations surrounding it, hence rating this identity as very important, and those who are high in CSJA, possibly androgynous, who on ideological grounds believe they have a gender, but for whom their type of gender is relatively unimportant.

There was no association between political affiliation and asserting a gender identity in the UK sample, but, for the US, Republicans were more likely to say they have a gender identity than Democrats. This raises the question as to whether Republicans interpret the term gender identity as referring to their biology. Indeed, when gender identities were reported, most responses were male or female rather than man or woman. Following Schudson et al.'s (2019) survey of how male/female/man/woman terms are popularly understood, this suggests that gender identity was seen primarily in our study as biological.

This study thus found that a significant minority of people state when asked that they do not have a gender identity. Furthermore, sex or gender-based identities were rare in free-form responses to a request to state one's top five identities, where 8.6% responded with man or woman, and 3.4% with male or female. The contrast between lack of belief in a gender identity for some versus belief in genders and indeed multiple genders maps onto Bem's (1995) distinction between dialling down and dialling up belief in gender, both of which she said can be strategies for diminishing the rigidities of sex-role beliefs. Bem (1995) relates the dialling down of belief in gender to androgyny:

In an early paper on androgyny, I suggested that "when androgyny becomes a reality, the concept of androgyny will have been transcended" (Bem, 1976, p. 60). I meant by this that when the androgynous message had finally been absorbed by the culture, the concepts of masculinity and femininity would cease to have content, and the distinctions to which they refer would blur into invisibility. (p.330)

A similar point is made by Earp (2021), using analogies on whether it is socially desirable that the abolition of gender occurs when there are no prescriptive social distinctions based on sex. Likewise, Briggs and George (2023) state that 'If we understand "gender" as a system of norms, then there's a cogent (though not airtight) case against "gender"'(p.81) and that it might be that 'removing gender norms will cause people to lose interest in

the categories until they naturally fade away.' (p.85.) This lack of interest might characterize our participants who state that they do not have a gender identity.

As reviewed above there are many social and identity definitions of gender identity. That there are so many different measures and components suggests that the jingle fallacy may be occurring. In the jingle fallacy two or more distinct psychological phenomena are labelled with the same name (Hanfstingl et al., 2024; Pekrun, 2023), which can result in unclear definition and reification of the labelled name (Altgassen et al., 2024). It is arguable that the term gender identity is a conflation of belief, personality, and sense or feeling variables, this conflation having further issues regarding circularity of definition and reliance on subjective experience (Griffin et al., 2020). The implication here is that when monitoring, survey or research questions ask for respondents' 'gender identity', an option of 'none' should be given, to be inclusive of individuals (possibly ~ 20%) who believe that, although they have a sex, they do not have a gender identity. This would also allow for sex and gender to be assessed separately, as proposed by Gribble et al. (2025) and Sullivan (2025).

Limitations and future research

The study presented the term gender identity without any definition and without asking participants how they understand the term. Individual differences in understanding and in asserting or rejecting gender identity should be explored, as a function of number of other identities asserted, of androgyny, of levels of belief in traditional sex-roles, and including the gender-based CSJA items in Lahtinen (2024) that were excluded from the final 7-item CSJA scale. Given political and cultural developments regarding gender and belief in gender identity, longitudinal studies assessing changes in levels of belief and lack of belief in gender identity are also recommended.

Declarations

Disclosure of potential conflicts of interest: None.

Research involving Human Participants: The studies received institutional ethics committee approval for research involving human participants.

Informed consent: Participants gave written informed consent prior to taking part.

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References

1. Altgassen E., Geiger M., & Wilhelm O. (2024). Do you mind a closer look? A jingle-jangle fallacy perspective on mindfulness. *European Journal of Personality,* 38, 365 – 387. https://doi.org/10.1177/08902070231174575
2. American Psychological Association. (2026). APA Dictionary of Psychology, entry for gender identity, updated 6th March 2026. Accessed 24th March 2026. https://dictionary.apa.org/gender-identity
3. Aron, E. N., & Aron, A. (1997). Sensory-processing sensitivity and its relation to introversion and emotionality. *Journal of Personality and Social Psychology,* 73, 345-368. https://doi.org/10.1037/0022-3514.73.2.345
4. Atari, M., Lai, M.H.C., & Dehghani, M. (2020). Sex differences in moral judgements across 67 countries. *Proceedings of the Royal Society B*, 287, 20201201. http://dx.doi.org/10.1098/rspb.2020.1201
5. Bem, S. L. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology,* 42, 155–162. https://doi.org/10.1037/h0036215
6. Bem, S.L. (1976). Probing the promise of androgyny. In A. G. Kaplan & J. P. Bean (Eds.), *Beyond sex-role stereotypes: Readings toward a psychology of androgyny* (pp. 48-62). Boston: Little Brown.
7. Bem, S.L. (1995). Dismantling gender polarization and compulsory heterosexuality: Should we turn the volume down or up? *Journal of Sex Research, 32*, 329-334. https://doi.org/10.1080/00224499509551806

8. Biggs, M. (2024). Gender identity in the 2021 census of England and Wales: How a flawed question created spurious data. *Sociology*, 58, 1305-1323. https://doi.org/10.1177/00380385241240441
9. Bogardus, T. (2026). *The nature of the sexes: Why biology matters.* Abingdon, UK & New York: Routledge.
10. Briggs, R.A., & George, B.R. (2023). *What even is gender?* Abingdon, UK & New York: Routledge.
11. Burke, P.J., & Stets, J.E. (2023). *Identity theory, second edition*. Oxford University Press.
12. Byrne, A. (2020). Are women adult human females? *Philosophical Studies*, 177, 3783–3803. https://doi.org/10.1007/s11098-019-01408-8
13. Byrne, A. (2023). The origin of "gender identity". *Archives of Sexual Behavior,* 52, 2709–2711. https://doi.org/10.1007/s10508-023-02628-0
14. Earp, B. D. (2021). Abolishing gender. In D. Edmonds (Ed.), *Future morality* (pp. 35-49).
15. Oxford University Press. https://doi.org/10.1093/oso/9780198862086.003.0004
16. Ellemers, N., Spears, R., & Doosje, B. (2002). Self and social identity. *Annual Review of Psychology*, 53, 161–186. https://doi.org/10.1146/annurev.psych.53.100901.135228
17. Fisher, E., Wright, S., & Sargeant, C. (2025). What do measures of gender identity tell us about gender identity over time? *British Journal of Developmental Psychology*, 43, 319-341. https://doi.org/10.1111/bjdp.12491
18. Foran, M. (2026). *Sex, gender identity and the law*. Cambridge University Press.
19. Fraser, G. (2018). Evaluating inclusive gender identity measures for use in quantitative psychological research. *Psychology & Sexuality,* 9, 343-357. https://doi.org/10.1080/19419899.2018.1497693
20. Gribble, K.D. (2025). A proposal for terminology for clear communication and avoidance of confusion in relation to sex, the social expectations of the sexes and gender identity. *Archives of Sexual Behavior,* 54, 3833–3840. https://doi.org/10.1007/s10508-025-03310-3
21. Griffin, L., Clyde, K., Byng, R., & Bewley, S. (2020). Sex, gender and gender identity: A re-evaluation of the evidence. *BJPsych Bulletin*, 45, 291–299. https://doi.org/10.1192/bjb.2020.73
22. Hanfstingl, B., Oberleiter, S., Pietschnig, J., Tran, U.S., & Voracek, M. (2024). Detecting jingle and jangle fallacies by identifying consistencies and variabilities in study specifications – a call for research. *Frontiers in Psychology,* 15, 1404060. https://doi.org/10.3389/fpsyg.2024.1404060
23. Ho, F., & Mussap, A. (2019). The gender identity scale: Adapting the gender unicorn to measure gender identity. *Psychology of Sexual Orientation and Gender Diversity,* 6, 217-231. https://doi.org/10.1037/sgd0000322
24. Hyde, J. S., Bigler, R. S., Joel, D., Tate, C. C., & van Anders, S. M. (2019). The future of sex and gender in psychology: Five challenges to the gender binary. *American Psychologist, 74,* 171–193. https://doi.org/10.1037/amp0000307
25. Jeffreys, S. (2014). *Gender hurts: A feminist analysis of the politics of transgenderism*. London: Routledge.
26. Jenkins, K. (2018). Toward an account of gender identity. *Ergo: An Open Access Journal of Philosophy*, 5, 713–744. https://doi.org/10.3998/ergo.12405314.0005.027
27. Jenkins, R. (2014). *Social identity, fourth edition*. London & New York: Routledge.
28. Joel, D., Tarrasch, R., Berman, Z., Mukamel, M., & Ziv, E. (2014). Queering gender: Studying gender identity in 'normative' individuals. *Psychology & Sexuality*, *5*, 291–321. https://doi.org/10.1080/19419899.2013.830640
29. Lahtinen, O. (2024). Construction and validation of a scale for assessing critical social justice attitudes. *Scandinavian Journal of Psychology*, 65, 693-705.
30. Lindqvist, A., Sendén, M. G., & Renström, E. A. (2021). What is gender, anyway: a review of the options for operationalising gender. *Psychology & Sexuality*, *12*, 332–344. https://doi.org/10.1080/19419899.2020.1729844
31. Maya Forstater v CGD Europe and Others (2021). Employment Appeal Tribunal judgment, UKEAT/0105/20/JOJ, 10 June 2021. https://assets.publishing.service.gov.uk/media/60c1cce1d3bf7f4bd9814e39/Maya_Forstater_v_CGD_Europe_and_others_UKEAT0105_20_JOJ.pdf
32. McDermott, M.L. (2016). The androgynous, undifferentiated, masculine, and feminine: A categorical analysis of gendered personality effects. In M.L.McDermott, *Masculinity, femininity, and American political behavior* (pp.111-131). Oxford University Press. https://doi.org/10.1093/acprof:oso/9780190462802.003.0005
33. McGuire, J.K., Beek, T.F., Catalpa, J.M., & Steensma, T.D. (2019). The Genderqueer Identity (GQI) Scale: Measurement and validation of four distinct subscales with trans and LGBQ clinical and community samples in two countries. *International Journal of Transgender Health*, 20, 289-304. https://doi.org/10.1080/15532739.2018.1460735
34. McKitrick, J. (2015). A dispositional account of gender. *Philosophical Studies*, 172, 2575–2589 https://doi.org/10.1007/s11098-014-0425-6
35. Pekrun, R. (2023). Jingle-Jangle fallacies in motivation science: Toward a definition of core motivation. In M. Bong, J. Reeve, & S.-i. Kim (Eds.), *Motivation science: Controversies and insights*. New York: Oxford Academic. https://doi.org/10.1093/oso/9780197662359.003.0009
36. Pratt, S., Jones, P.J., Bellet, B.W., McNally, R.J., & Gray, K. (2026). The words can harm scale: Measuring beliefs about harmful speech. *Personality and Individual Differences,* 257, 113785. https://doi.org/10.1016/j.paid.2026.113785
37. Romero, A., Blanch, A., & Chopik, W.J. (2026). Male and female empathy across 24 countries and 60 latitudinal degrees. *Personality and Individual Differences*, 251, 113596. https://doi.org/10.1016/j.paid.2025.113596
38. Schmitt, D. P., Realo, A., Voracek, M., & Allik, J. (2008). Why can't a man be more like a woman? Sex differences in Big Five personality traits across 55 cultures. *Journal of Personality and Social Psychology*, 94, 168–182. https://doi.org/10.1037/0022-3514.94.1.168

39. Schudson, Z. C., Beischel, W. J., & van Anders, S. M. (2019). Individual variation in gender/sex category definitions. *Psychology of Sexual Orientation and Gender Diversity, 6*, 448–460. https://doi.org/10.1037/sgd0000346
40. Sullivan, A. (2025). Independent review of data, statistics and research on sex and gender. UK Government report, Department for Science, Innovation and Technology. https://www.gov.uk/government/publications/independent-review-of-data-statistics-and-research-on-sex-and-gender
41. Therapist.com. (2025). Gender identity and mental health.https://therapist.com/identity/gender-identity/. Updated 18th February 2025. Accessed 24th March 2026.
42. Todd, S. (2024). Sex and gender in second-wave feminism. In A. Sullivan & S. Todd (Eds.), *Sex and gender – A contemporary reader* (pp.86-103). London & New York, Routledge.
43. Westra, E. (2023). Symbolic belief in social cognition. *Philosophical Perspectives*, 37, 388–408. https://doi.org/10.1111/phpe.12196
44. Wood, W., & Eagly, A.H. (2015). Two traditions of research on gender identity. *Sex Roles* 73, 461–473. https://doi.org/10.1007/s11199-015-0480-2
45. Zucker, K. J., Bradley, S. J., Sullivan, C. B., Kuksis, M., Birkenfeld-Adams, A., & Mitchell, J. N. (1993). A gender identity interview for children. *Journal of Personality Assessment*, 61, 443–456. https://doi.org/10.1207/s15327752jpa6103_2
46. Zucker, K.J., Mitchell, J.N., Bradley, S.J., Tkachuk, J., Cantor, J.M., & Allin, S.M. (2006). The recalled childhood gender identity/gender role questionnaire: Psychometric properties. *Sex Roles,* 54, 469–483. https://doi.org/10.1007/s11199-006-9019-x

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