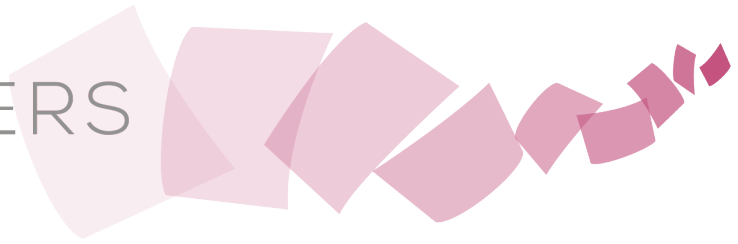


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# Measurement of Sexism, Gender Identity, and Perceived Gender Discrimination: A Brief Overview and Suggestions for Short Scales

Jérôme Blondé<sup>1</sup>, Lavinia Gianettoni<sup>1</sup>, Dinah Gross<sup>1</sup>, and Edith Guilley<sup>2</sup>

<sup>1</sup> University of Lausanne, Lausanne

<sup>2</sup> Service de la Recherche en Education, Geneva

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## SUMMARY

The development of reliable and valid measures is a major challenge for gender-related research. Nonetheless, it is a necessary effort to undertake in order to assess gender inequalities accurately and pinpoint explanatory variables. Drawing on a social-psychological perspective that underscores the role of attitude, identity, and individual experience in examining gender issues, the present paper provides a brief review of the measures most commonly used to assess sexism, gender identity, and perceived gender-based discrimination. In addition, we offer suggestions for short measurement scales with the hope that sexism, gender identity, and gender discrimination can be included more extensively in large-scale opinion surveys.

**Keywords:** Gender; Measurement; Sexism; Gender Identity; Gender Discrimination

For more than forty years, social science research has invested considerable efforts in understanding the roots of gender inequalities and differences between men and women's attitudes and behaviours (Marchbank & Letherby, 2014). In parallel, a strong focus has been placed on the development of measuring instruments with the aim of equipping researchers with dependable tools for accurately estimating gender differences and effects of predictive variables. Although a considerable number of measures have been developed in gender research to this day, new developments are still ongoing to address their psychometric limitations and provide better assessments. A great deal of methodological work has also been conducted to validate and adjust measurement scales to respondents' cultural contexts and evolution of gender norms over time. Indeed, attitudes and behaviours regarding the relations between men and women have noticeably changed over the past decades (Bornatici et al., 2020), and a number of feminist movements have arisen lately (e.g., #MeToo, The Women's March) that have strongly affected the socio-normative climate surrounding gender issues (Kessler et al., 2020; Levy & Mattsson, 2020). It has been therefore required to update gender measures in the light of such societal shifts.

In this contribution, we propose to review the quantitative measures most commonly used in the social-psychological literature to evaluate three important variables: sexism, gender identity, and perceived gender discrimination. These variables have been extensively examined in research and have been shown to play key roles in understanding inequalities between men and women. Essentially, each of them falls within a theoretical perspective grounded in social psychology that emphasizes three dimensions in the analysis of gender issues: attitude, identity, and individual experience. Before looking in more detail at the methodological characteristics of the selected instrumentations, we will first review this theoretical perspective. We will then conclude our article by underscoring some limitations associated to gender measures.

## 1. A SOCIAL-PSYCHOLOGICAL PERSPECTIVE

Among the many disciplines that have focused on gender issues, social psychology has emerged as a dynamic and prolific research field (see Faniko et al., 2015; Rudman & Glick, 2010). Numerous surveys and studies have been conducted to contribute to a better assessment of inequalities between men and women in many areas of social and economic life and a better understanding of social-psychological forces underlying them. This research perspective has been structured around three dimensions in its analysis of gender phenomena: attitude, identity, and individual experience.

### 1.1. Attitude

Based on a socio-constructivist view of social relations, the social-psychological perspective posits that gender encompasses a set of various attitudes or beliefs that individuals commonly build and share about what it is to be a man or a woman and how they should interact. This is the case of gender stereotypes, which arbitrarily assign distinctive traits and characteristics to gender categories. Women are perceived to be warm and have communal traits (i.e., altruism, focused on others' needs), while men are seen as competent and possessing agentic traits (i.e., independence, competition, assertiveness; Eagly, 1987; Fiske et al., 2002).

Gender attitudes and beliefs have a powerful impact because they can make their content come true without individuals being able to clearly realize that they are the result of a social construction. Men and women align, often unconsciously, on the traits and characteristics

associated with the gender with which they identify and apply what is socially expected of them. Many studies have shown that subtly mentioning gender stereotypes may be sufficient to bring out or reinforce the differences that they presuppose. For example, women have been found to perform less well in mathematics when the stereotype stating they are incompetent in science and mathematics is salient (Huguet & Régner, 2007; Nguyen & Ryan, 2008; Spencer et al., 1999). Affective and cognitive efforts that are required in trying not to confirm stereotypes eventually backfire and end up undermining women's performance in mathematics. Nevertheless, individuals may have difficulty in recognizing the role that social beliefs and attitudes play in the observed differences between men and women. They are much more likely to believe that they result from deep-seated and unchangeable characteristics rooted in female and male essences. This way, they form a stronger basis for justifying the maintenance of gender differences and hierarchy (Glick & Fiske, 1996).

The social-psychological perspective, because it points to the existence of a profound influence of beliefs and attitudes in the emergence of gender differences, goes beyond the pitfalls of an essentialist approach by looking at gender relations through their social dimension and power relationships between asymmetrical groups. In this sense, such theorizing is at odds with theoretical approaches based on biology or neuroscience which tend to put the light on the fundamental biological differences between the sexes. While gender differences may have a biological basis, they also rest on - or constitute in themselves - socially shared forms of knowledge that bring out distinct patterns of personality traits, skills, or behaviours, which are a function of their salience in a given context. From this viewpoint, the social-psychological perspective offers significant room for propelling social change and breaking with the status quo. By locating the causes of gender differences in forces deriving from socially shared attitudes, it becomes then possible to act on and modify them in the direction of greater gender equality.

## 1.2. Identity

Gender forms subjectively and socially relevant categories for individuals' identities. It is generally a central aspect of their self-concept, along with age, socio-economic status, or nationality. While sex refers to sexual category assigned at birth, gender refers to self-designated identity. Whereas biological sex is rather fixed and immutable, gender identity can be more or less fluctuating depending on the contexts and periods of life. For some, gender identity may be defined in terms of the biological sex assigned at birth and may fall into the category of "male" or "female," for others gender identity may be defined regardless of biological sex. For transgender people for example, sex assigned at birth does not match gender identity. They feel a discrepancy between their sex assigned at birth and the gender identity with which they define themselves (a phenomenon also known as gender dysphoria). Besides, gender identity can be defined beyond the traditional man-woman dichotomy with individuals opting for alternative gender-based categories, such as intergender, genderfluid, agender, non-binary, or genderqueer<sup>1</sup>.

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<sup>1</sup> Intergender people have a gender identity that is between the identities of female and male, or a combination of both. Genderfluid people feel that their gender is not static but may switch between female or male identities over time. Agender people do not categorize themselves within any gender identity or may think that their gender is neutral. Non-binary and genderqueer are umbrella terms that

Gender identities are constructed on the basis of gender attitudes and stereotypes in such a way that individuals incorporate into their individual selves what defines the social identity of their gender. One feels to be a "woman" or "man" according to the accepted criteria or beliefs of a given group or society about what it is to be a woman or man. Research has shown that men tend to develop a sense of self that is more oriented toward independence, autonomy, and uniqueness, while women build an image of themselves as being more oriented toward interdependence or relatedness (Cross & Madson, 1997; Guimond et al., 2006). Gender identity is an aspect of self-concept that derives from socially constructed representations of masculinity and femininity. In this sense, gender identities can be framed differently as a function of societal changes, cultures, or more generally of the content that people collectively agree to attribute to gender categories in a given context. A recent body of studies has shown that the identity of feminist women has become increasingly salient over time, with different implications for social perception and behaviour as is the identity of women understood in a traditional sense (see Siegel & Calogero, 2021). In particular, identifying with feminist women has been shown to be associated with enhanced perceptions of the prevalence of sexism in society (e.g., Henderson-King & Stewart, 1994) and with increased engagement in feminist collective actions (e.g., Becker & Wagner, 2009; van Breen et al., 2017; Yoder et al., 2011).

Moreover, research has demonstrated that gender attitudes and inequalities propagate and are maintained through their internalization into self-identities (Bem, 1981; Markus, 1977). Men and women produce definitions of themselves according to gender beliefs and stereotypes and develop in turn skills or behaviours that align with the traits of their identity. Gender identity constitutes a form of unconscious catalyst for gender beliefs and ensures their perpetuation by being incorporated as personality traits on which individuals form their judgments and behaviours. Hence, individuals have been shown to display more stereotypical gender behaviours when they strongly identify with their gender (e.g., Lorenzi-Cioldi, 1991; Schmader, 2002) or when gender categories are salient (e.g., Cadinu & Galdi, 2012; Ryan et al., 2004). For example, a number of studies have shown that gender differences in terms of social dominance are strongest among those who are most identified with their gender group (e.g., Chatard et al., 2007; Dambrun et al., 2004; Wilson & Liu, 2003) or when gender identity is particularly salient (Huang & Liu, 2005). The adoption of behaviours that are in line with gender stereotypes, upon which gender differences are built, is the result of a congruency with the central features of gender identities, which people use as a basis in the development of their individual self-concepts.

### 1.3. Individual Experience

Gender shapes individual experiences or life events that men and women encounter. This is particularly the case in regard to the experiences of discrimination. Gender discrimination refers to a range of negative treatments or behaviours that people may experience because of their gender. Notably, women experience multiple forms of sexist acts in their daily lives ranging from sexist jokes to humiliation, denigration, or even physical violence. In their study, Klonoff and Landrine (1995) showed that 99% of the women that they surveyed reported having encountered sexist experiences at least once in their lifetime and 97% within the past year. For example, in the school context, which is not spared from sexist discrimination, it has

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refer to people who define themselves outside gender binarity; they may either identify with a third gender, both genders, no gender at all, or have a fluctuating gender identity.

been abundantly observed that girls are the target of sexist jokes, mockery, harassment, and physical abuse (e.g., Hill & Kearl, 2011; Jewell & Brown, 2013; UNESCO, 2017). In turn, discrimination crucially undermines their engagement and performance at school, along with profound psychological repercussions (e.g., lower self-esteem, anxiety, depression). Numerous studies have shown that perceived gender-based discrimination is a good predictor of stress in women and the development of mental disorders (Klonoff et al., 1995, 2000; Vigod & Rochon, 2020).

Experiences of gender discrimination have been theorized by social psychological research as resulting from gender-related attitudes that men and women may consensually hold and share. The origins of gender discrimination phenomena may lie in part in the violation of socially constructed beliefs and norms surrounding gender identities. Breaking with gender stereotypes has been shown to give rise to strong forms of discrimination or violence. For example, women with agentic, typically masculine traits, are likely to experience higher levels of discrimination in the workplace (e.g., hiring discrimination) than women with communal traits, and more particularly in traditionally masculine fields (Moss-Racusin & Rudman, 2010; Rudman & Glick, 2001). More generally, women's initiative to enter male-dominated environments will likely lead to discrimination (Heilman & Wallen, 2010; Heilman et al., 2004). For example, numerous studies have shown that experiences of discrimination and violence are common among women in STEM (Science, Technology, Engineering and Mathematic) fields of study (e.g., Ceci et al., 2009, 2014; Cheryan et al., 2009; Robnett, 2016). By entering work environments unwelcoming to women, men may exhibit particularly hostile and threatening reactions in order to push them out, thereby ensuring the preservation of the status quo and masculine dominance in these domains.

Moreover, acts of sexist discrimination or gender-based violence are often underpinned and justified by attitudes or ideologies that promote the superiority of men over women and the maintenance of a hierarchical gender system (Glick & Fiske, 1996; Jost & Kay, 2005). This is the case of sexist beliefs, which have been shown to provide a basis for justifying violence and discrimination. Numerous studies have shown that adherence to a traditional masculine ideology promotes acts of sexist discrimination and may be used, by both women and men, as a means for legitimizing them (Glick & Fiske, 1996; Kilianski, 2003). Besides, masculine ideologies do not only enable men to justify violence and discrimination against women, but also to demonstrate that they successfully comply with the norms of masculine identity. Discrimination against women, especially in typically masculine environments, serves to prove that men are "real men" and that they are legitimate in claiming a dominant status over women (Bosson & Michniewicz, 2013; Vandello & Bosson, 2013).

## 2. MEASUREMENT OF SEXISM, GENDER IDENTITY, AND PERCEIVED GENDER DISCRIMINATION

To accurately assess the role of gender-based attitude, identity, and experience, valid and reliable measuring instruments are needed. We propose here to review the extant measures of sexism, gender identity, and perceived gender discrimination. Owing to the large number of measures developed, we will not offer a comprehensive description but will focus only on those most widely used in social-psychological research to date. We have identified three to five scales for each construct. As far as possible, we will describe the structure and dimensions of

each measure and provide examples of items. A list of each of the scales reported in the present review may be found in Table 1.

We will additionally provide suggestions for short forms. Although most large-scale surveys (e.g., International Social Survey, European Value Survey, Swiss Household Panel, MOSAiCH) have addressed gender issues, they have not always included adequate measures that reflect gender-based attitudes, identity, and experiences. One reason is that a majority of the extant measures are much too long to be fully integrated in surveys. In most cases, they include more than twenty items, even sometimes more than fifty (see Table 1). Therefore, we wish here to suggest abbreviated measures of sexism, gender identity, and perceived gender-based discrimination that include a small number of items and that might be easily embedded in large-scale opinion surveys, as well as any types of research whatsoever. Although the development of short scales may come with some limitations in terms of reliability, validity, or measurement precision, we however believe that they can offer clear benefits for research (see Rammstedt & Beierlein, 2014).

Some of the scales that we propose here have been created by combining items from different scales validated or used previously in the literature (this is the case for the sexism scale), while others have been entirely or partially constructed by our own means (this is the case for the gender identity and discrimination scales). On the one hand, the primary objective that guided our item selection was to keep the scales as short as possible (i.e., with a maximum of 6-7 items). Therefore, we focused on items that measured most directly each construct. We avoided including items referring to too specific situations that may make less sense for the development of short scales, and instead, we preferred broader, less context-dependent items. On the other hand, we sought to ensure that the items selected would capture adequately and accurately the constructs examined and that they would reflect, with as much subtlety as possible, the different theoretical dimensions that they are supposed to encapsulate. The desire for brevity should not lead to the omission of theoretical considerations. In this sense, we have provided, for each scale suggested, justifications based on the theoretical and methodological developments that will be first described. As far as possible, we have also tried to address some of the limitations of currently used measures by modifying the wording of the items or instructions, or by adding more appropriate items.



Table 1. Measures of sexism, gender identity, gender-based discrimination described in the present review (in chronological order)

Variable measured	Scales	Authors	Year	Number of items	Dimensions/Subscales
<b>Sexism</b>	Attitudes toward Women Scale (AWS)	Spence & Helmreich	1972	55	Uni-dimensional
	Modern sexism scale	Swim et al.	1995	13	a) Old-fashioned sexism b) Modern sexism
	Neo-sexism scale	Tougas et al.	1995	11	Uni-dimensional
	Ambivalent Sexism Inventory (ASI)	Glick & Fiske	1996	22	a) Hostile sexism b) Benevolent sexism (heterosexual intimacy, protective paternalism, complementary gender differentiation)
	Belief in Sexism Shift (BSS)	Zehnter et al.	2021	15	Uni-dimensional
<b>Gender Identity</b>	Bem Sex Role Inventory (BSRI)	Bem	1974	60	a) Masculinity b) Femininity
	Collective Self-Esteem Scale (CSES) (identity subdimension)	Luthanen & Crocker	1992	4	Uni-dimensional
	Multi-Gender Identity Questionnaire (Multi-GIQ)	Joel et al.	2014	32	a) Feeling of being a man and a woman b) Contentment with one's gender and the wish to belong to the other gender c) Gender performance d) Compliance with gender norms
<b>Gender-based Discrimination</b>	Schedule of Sexist Events (SSE)	Klonoff & Landrine	1995	20	a) Sexist degradation b) Sexism in distant relationships c) Sexism in close relationships d) Sexist discrimination in the workplace
	Experiences with Benevolent Sexism Scale (EBSS)	Oswald et al.	2019	25	a) Heterosexual intimacy b) Complementary gender differentiation c) Protective paternalism
	Experiences with ASI (EASI)	Salomon et al.	2020	28	a) Hostile sexism (hostile sexism, heterosexual hostility) b) Benevolent sexism (heterosexual intimacy, protective paternalism, complementary gender differentiation)

## 2.1. Measures of Sexism

Sexism may be defined as a discriminatory attitude about a person on the sole basis of his or her sex. Sexism relates to gender stereotypes as both foster a negative view of women in order to justify gender differentiation and the dominant position of men. From the 70's onwards, several measures have been constructed to assess participants' adherence to sexist attitudes. In the present review, we will focus on the Attitude toward Women Scale, the Modern Sexism Scale, the Neosexism Scale, the Ambivalent Sexism Inventory, and the Belief in Sexism Shift.

*The Attitude toward Women Scale.* The Attitudes toward Women Scale (AWS; Spence & Helmreich, 1972) was one of the first instrument developed to measure sexism and was designed to assess stereotypical perceptions of women's roles and rights in various domains (i.e., professional, relational), as well as beliefs related to differential treatment and behaviours between women and men. The AWS consists of 55 statements to which respondents can indicate whether they agree or disagree (e.g., "*Swearing and obscenity are more repulsive in the speech of a woman than of a man*", "*There are many jobs in which men should be given preference over women in being hired or promoted*"). Short forms comprising 25 and 15 items have also been constructed (see Spence et al., 1973, 1978). Those with a low score are considered to have a more traditional, anti-feminist attitude, while those with a high score are considered to have a progressive, feminist attitude. Although details about the development of the original scale are currently unavailable, the validation of short forms was completed in samples of female and male psychology fresh year students in the United States (US). This scale has notably been used to investigate the effects of sexist attitudes in the workplace (Craig & Jacobs, 1985; Haemmerlie & Montgomery, 1991). Although the AWS has good psychometric properties (see Daugherty & Dambrot, 1986), it has been criticized for measuring only an overt form of sexism, which tends to diminish over time and to be more difficult to capture through self-reported measures. Indeed, recent socio-normative changes make it particularly difficult and unacceptable for respondents to explicitly express hostile views toward women. Therefore, the AWS would not measure adherence to sexist beliefs *per se* but would rather identify individuals who are willing to openly display that they are sexist and override the requirements of social desirability.

The most recent measures of sexism differ from the AWS as they include more subtle and less obvious forms of sexism. These scales distinguish between attitudes that overtly promote an unequal treatment of women and the maintenance of traditional gender roles, and subtle attitudes that do not explicitly advocate for the maintenance of gender inequalities but, in fact, contribute to them. In this sense, individuals may have low traditional sexism scores but high subtle sexism scores. In some cases, endorsement of a subtle form of sexism may allow individuals to hide, under more acceptable terms, real support for negative treatment of women without overtly displaying it. There is an appearance of egalitarianism that only addresses concerns of social desirability and masks deeper discriminatory attitudes. However, as Benokraitis and Feagin (1986) pointed out, behind the adherence to this type of sexism, there is not always a conscious desire to hide sexist prejudices, but also a difficulty in recognizing and being aware that some beliefs or behaviours are sexist or may lead to sexism. Individuals are not necessarily resistant to improving the status of women but do not perceive that by opposing, for example, action-affirmation policies in favour of women, they are participating in the maintenance of gender inequalities and male domination.

*The Modern Sexism Scale.* The modern sexism scale contrasts old-fashioned sexism (which refers to traditional attitudes toward gender roles) with modern sexism. Based on the modern

racism scale (McConahay, 1986), modern sexism, as defined by Swim et al. (1995), builds on three beliefs: 1) discrimination against women does not exist (or no longer exists), 2) women have exaggerated demands in society, and 3) women receive special treatment. Adherence to these beliefs, which do not explicitly promote disadvantageous treatment for women and could be interpreted as not advocating gender bias, indirectly ends up contributing to gender discrimination by casting doubts on the existence of discrimination as a whole. Studies have shown, in this sense, that high levels of modern sexism predict a higher propensity for gender harassment (Hitlan et al., 2009), the use of sexist language (Parks & Robertson, 2004), as well as reduced engagement in feminist actions (Becker & Wagner, 2009). Additionally, it has been shown that people with high modern sexism scores undervalue gender inequalities in the workplace by overestimating the proportion of women in male-dominated work environments (Swim et al., 1995). Swim et al.'s (1995) scale includes 13 items. Five items assess old-fashioned sexism (e.g., "*Women are generally not as smart as men*", "*It is more important to encourage boys than to encourage girls to participate in athletics*") and 8 items measure modern sexism (e.g., "*Society has reached the point where women and men have equal opportunities for achievement*", "*Discrimination against women is no longer a problem in the United States*"). Two studies were carried out to validate the scales. Both scales of old-fashioned and modern sexism were administered to a sample of 680 (Study 1) and 788 (Study 2) European American students from an introductory psychology course at a public university in the US.

*The Neo-Sexism Scale.* Tougas et al. (1995) have proposed a measure distinguishing old-fashioned sexism from neo-sexism. They define neo-sexism as the "manifestation of a conflict between egalitarian values and residual negative feelings toward women" (p. 843) and show that high scores of neo-sexism manifest themselves through low support for public policies directed at improving the status of women. The neo-sexism scale is composed of 11 items whose contents are close to those of the modern sexism scale (e.g., "*Discrimination against women in the labour force is no longer a problem in Canada*", "*Women's requests in terms of equality between the sexes are simply exaggerated*"). Validation of the scale was performed among samples of Canadian psychology students from the University of Ottawa.

*The Ambivalent Sexism Inventory.* The ASI is one of the most widely used measures of sexism to date. This measure draws on Glick and Fiske (1996)'s theory of ambivalent sexism, which suggests that sexism can take two forms: hostile sexism (HS) and benevolent sexism (BS). HS is an overtly negative attitude toward women (e.g., "*women seek power by having control over men*"), especially toward those who do not conform to traditional gender norms or who challenge gender inequalities. HS can manifest itself through sexist humour, harassment, or physical violence. It incorporates three characteristics: paternalism (i.e., women are subordinate to men and must be dominated and controlled, especially if they resist embodying a devalued status), competitive gender differentiation (i.e., women cannot be leaders or ensure high-status roles), and heterosexual hostility (i.e., women use sex for their own purposes, to control men). BS refers to a more positive, seemingly flattering, and supportive attitude toward women (e.g., "*Women, compared to men, tend to have a greater sense of morality*"). It is organized around three categories of beliefs: complementary gender differentiation (i.e., women are morally superior and can better perform domestic roles), protective paternalism (i.e., women are vulnerable and fragile beings who should be loved and protected), and heterosexual intimacy (i.e., women are indispensable for men's love and happiness). Although hostile and benevolent forms of sexism are positively correlated (Glick et al., 2000) and both predict gender inequality (e.g., participation in a country's economy and political life; Glick &

Fiske, 2001), they do not have the same implications for women's and men's behaviours and do not operate through the same mechanisms. HS, which is more aggressive and explicitly unfavourable to women's empowerment, aims to punish women who deviate from traditional roles. Greater endorsement of HS leads to negative evaluations of women in the workplace (Masser & Abrams, 2004) and greater tolerance for sexual harassment (Russell & Trigg, 2004). In addition, intense resistance and oppositional responses are likely to arise from women who are exposed to hostile sexist acts (Bosson et al., 2009; Salomon et al., 2015). In contrast, BS aims to reward women for acting in accordance with traditional roles and is therefore more accepted. Because it appears positive, women who are exposed to BS are less prone to engage in collective actions for women's rights (Becker & Wright, 2011). They end up accepting restrictions on their individual freedoms (Moya et al., 2007) and conforming to gender stereotypes (Barreto et al., 2010; Glick & Fiske, 2001).

The ASI measures individuals' endorsement of HS and BS. It consists of 22 items in total and two subscales of 11 items each: a HS subscale and a BS subscale. The HS subscale captures traditional sexism as measured by the AWS or old-fashioned sexism, and includes a single dimension (e.g., "*Most women interpret innocent remarks or acts as being sexist*", "*Women seek to gain power by getting control over men*"). The BS subscale assesses positive and seemingly beneficial beliefs for women, and is structured around three dimensions: heterosexual intimacy (HI; e.g., "*No matter how accomplished he is, a man is not truly complete as a person unless he has the love of a woman*"), protective paternalism (PP; e.g., "*Women should be cherished and protected by men*") and complementary gender differentiation (CGD; e.g., "*Many women have a quality of purity that few men possess*"). Unlike measures of modern sexism and neo-sexism, ambivalent sexism, with its sub-dimension of BS, emphasizes a subtle positive form of sexism, which gives women an advantage and gives the impression of showing genuine support for women and gender equality. The ASI was developed and validated on a total sample of 2,250 participants, recruited across six studies. Most of those participants were Whites students approached at large public universities in the US (the remainder was recruited in public areas in various US states). Numerous studies have confirmed the validity and reliability of the ASI (e.g., Glick & Fiske, 1996), as well as its consistency across cultures (Glick et al., 2000). The scale has been validated in many languages around the world (e.g., into French by Dardenne et al., 2006; into Spanish, Exposito et al., 1998) and a large body of research has shown that the distinction between HS and BS is a good predictor of gender inequality (e.g., Glick & Fiske, 2001, 2011). Based on the ASI multi-factorial structure, note that Glick and Fiske (1999) have also constructed The Ambivalence Toward Men Inventory, which covers men and women's endorsement of sexist beliefs directed against men.

*The Belief in Sexism Shift.* Recently, Zethner et al. (2021) pointed to the existence of a new form of subtle sexism, aligned on the recent evolutions around gender attitudes. This has been labelled the belief in sexism shift (BSS) and refers to the idea that men are now, as never before, the primary targets of discrimination in the lieu of women (see also Ruthig et al., 2017; Wilkins et al., 2017). According to this emerging form of sexism, to which men adhere more widely than women, contemporary societal changes surrounding gender equality and women's emancipation would be the main drivers of such a shift in gender discrimination. Progress acquired by feminism is viewed as working intensively for promoting women's rights and not equality for all, and as having ultimately turned against men. Following a zero-sum perspective, men have ended up losing, where women have gained. This belief derives directly from sexism as insidiously concealing a negative attitude towards women. Thinking that men have become the main victims of discrimination is fundamentally driven by a desire to obscure discrimination

against women and undermine efforts put into limiting it. Following the logic behind the BSS, if men are now those most affected by gender discrimination, it becomes indeed necessary to stop the initiatives aimed at giving women better conditions. Moreover, BSS offers a useful framework to justify the preservation of the gender hierarchy and the dominant social position of men. Since they are the most discriminated against, it becomes legitimate to demand that policies be put in place to help maintain men's rights and superior status.

To further investigate this new form of sexist beliefs and assess its implications for attitudes and behaviours, Zethner et al. (2021) have developed and validated the BSS scale. The BSS scale is a 15-item, single-dimension, self-reported measure designed to assess the idea that men would now be the victims of gender discrimination and estimate the feelings of anti-male sexism in society. They conducted four studies, including a pilot study, testing the structure of the BSS scale with an initial pool of 75 items. Exploratory and confirmatory factor analyses, and convergent and discriminant validity analyses were conducted and confirmed the good reliability of the scale. A total of 1330 participants were recruited from Amazon Mechanical Turk, all of whom were US residents. Although there is only one dimension, several aspects are developed in the measure such as the perception that discrimination against men is increasing compared to women (e.g., *"In the US, discrimination against men is on the rise"*, *"If anything, men are more discriminated against than women these days"*), the zero-sum perspective (*"Giving women more rights often requires taking away men's rights"*) or the idea that progress related to women's rights or feminism is responsible for the current discrimination of men (*"In the pursuit of women's rights, the government has neglected men's rights"*, *"Feminism is about favouring women over men"*).

*Suggestion for a short scale.* In view of the methodological developments previously described, it seems clear that an adequate measure of sexism must reflect the distinction between a traditional, overtly negative, form of sexism, and a more subtle and positive form of sexism. Accordingly, our scale will be composed of two dimensions: traditional sexism and subtle sexism. Traditional sexism addresses an explicitly negative view of women and a belief in the dominance of men over women. To build this first dimension, we used the sub-scale of old-fashioned sexism (Swim et al., 1995) and decided to select two items, which seemed to us to tap most adequately into such a conceptualisation of traditional sexism: *"Women are generally not as smart as men"*, *"I would not be comfortable having a woman as a boss"*.

Subtle sexism covers a number of theoretical aspects that vary quite considerably according to the four scales presented above. However, we believe that it is important, as far as possible, that all these aspects can be reflected in our short scale proposition<sup>2</sup>. First, one of the most central features in the Modern Sexism Scale revolves around the belief that discrimination against women no longer exists and that gender equality is finally being achieved. After examining the items included in the dimension of modern sexism such as proposed by Swim et al. (1995), we decided to retain the item: *"Society has reached the point where women and men have equal opportunities for achievement"*, which seems to adequately capture the idea of a denial of discrimination. Second, as outlined above, the BS subscale of the ASI describes three dimensions of heterosexual intimacy, protective paternalism, and complementary gender differentiation. The dimension of heterosexual intimacy encompasses beliefs that women are crucial to men's life and that men's happiness depends on women's love. To assess such views, we decided to use the item: *"No matter how accomplished he is, a man is not truly complete as a person unless he has the love of a woman"*. Protective paternalism touches

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<sup>2</sup> We did not use the Neo-Sexism Scale so as to limit the number of items to be included.

upon the idea that women depend on men's protection and attention and, we thought, would be best captured by the item: "*Women should be cherished and protected by men*". Regarding the dimension of complementary gender differentiation, which addresses the belief that women naturally have positive attributes and qualities, which supposedly distinguish and place them as complementary to men, we decided to select the item: "*Many women have a quality of purity that few men possess*". Third, to adjust our scale to the current evolution of sexist beliefs, we propose to include an item from the BSS scale. Insofar as this scale has been constructed with the aim of evaluating the belief that there is now a shift of discrimination against men in favour of women, we have chosen the item which appeared to assess best this idea: "*If anything, men are more discriminated against than women these days*". This item may prove to be particularly useful as a complement to the modern sexism item in assessing the perceived evolution of discrimination against men and women over time. This will make it possible to assess the extent to which the denial of discrimination against women is being replaced by a shift in discrimination towards men. Ultimately, we propose a 7-items measure of sexism, including two items covering the traditional sexism dimension and five items covering the subtle sexism dimension. To respond, participants can indicate the degree to which they agree or disagree with each statement. The items are presented in Table 2.

Table 2. Short scale of sexism

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<b>Traditional sexism</b>
<i>"I would not be comfortable having a woman as a boss"</i>
<i>"Women are generally not as smart as men"</i>
<b>Subtle sexism</b>
<i>"Women should be cherished and protected by men"</i>
<i>"Many women have a quality of purity that few men possess"</i>
<i>"No matter how accomplished he is, a man is not truly complete as a person unless he has the love of a woman"</i>
<i>"Society has reached the point where women and men have now equal opportunities"</i>
<i>"If anything, men are more discriminated against than women these days"</i>

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## 2.2. Measures of Gender Identity

The most common way to measure gender identity in social psychology is to ask individuals to summarily report their sex or at best the sex to which they identify. Most typically, two mutually exclusive response choices are provided: male or female (see Cameron & Stinson, 2019; Lindqvist et al., 2020; Westbrook & Saperstein, 2015). Despite its simplicity, this measurement method lies on the implicit assumption that individuals can only consider themselves to be either male or female. However, research has shown that people can think of themselves as being both but to varying degrees (Bem, 1981). Some will think they are fully defined through one gender category and only marginally through the other, some will think their gender identity can encompass a combination of both, and some will think that none of the genders can describe their sense of self. In fact, people reflect on their gender identity through both female and male categories defined on a spectrum. The following measures specifically address that concern and have been designed to assess gender identity differently

from simply asking to choose between man or woman. More specifically, we will outline three scales: the Bem Sex Role Inventory, the Collective Self-Esteem Scale, and The Multi-Gender Identity Questionnaire.

*The Bem Sex Role Inventory.* One of the well-known scales measuring gender identity that captures aspects of both gender categories is the Bem Sex Role Inventory (BSRI; Bem, 1974). The goal of this scale is to examine the extent to which individuals internalize aspects of gender stereotypes and roles as part of their individual identity. Initially, Bem aimed to develop an androgyny scale by showing that individuals can possess both masculine and feminine personality traits. The BSRI measures how individuals identify themselves through both typically masculine and feminine personality traits. Therefore, this measure stands out for the idea that gender identity goes beyond two mutually exclusive categories. Individuals can define themselves through the category of male and female in a complementary manner and evaluate the degree to which these two categories best describe them. It is therefore possible for the same individual to be both high in femininity and masculinity. Concretely, the scale asks participants to rate on a 7-point Likert scale the extent to which personality traits apply to them. Although the original list included 200 traits in total, Bem shortened it to 60 personality traits, of which 20 were typically masculine traits (e.g., self-reliant, assertive, competitive), 20 were typically feminine traits (e.g., affectionate, sensitive to others' needs, warm) and 20 additional gender-neutral traits served as fillers. Two samples of US undergraduate students at Stanford University in the US were recruited to validate the scale. According to individuals' scores of femininity and masculinity, Bem defines 4 possible categorizations: strong femininity-strong masculinity (androgynous personality), strong feminine personality, strong masculine personality, weak masculine/feminine personality (undifferentiated personality). Research has shown that feminine and masculine scores are more predictive of gender-related phenomena (e.g., discrimination) than the binary categorization of male and female (Hammock & Richardson, 1992). A short form with 30 items was developed by Bem in 1981. However, it is important to note that despite its success and good psychometric qualities, the BSRI has some limitations. Although the Bem scale is still widely used to date and still has strong utility for analysing the impact of gender, changes in gender norms over time have made some of the statements somewhat outdated. In addition, the fact that the traits described were all relatively positive and socially valued, whether they were related to femininity or masculinity, may push participants to falsely report high levels of androgyny in order to portray a good image of themselves. Finally, another limitation is that masculinity and femininity are defined according to stereotypical characteristics that may not correspond to what individuals subscribe to. One could feel like a woman without viewing that the stereotypical characteristics of femininity promoted in the Bem scale define what a woman is (e.g., warm, altruistic).

*The Collective Self-Esteem Scale (Identity sub-dimension).* As an alternative to the BSRI, researchers in social psychology have also employed measures of identification to gender categories. These provide information about the degree to which being a man, or a woman is important to individuals' sense of self. Whereas no measure has been developed and validated to measure gender identification specifically, many studies have investigated gender identification by adapting scales of group identification. Notably, the identity subdimension of Luthanen and Crocker's (1992) Collective Self-Esteem Scale (CSES) has been extensively used to examine the levels of identification with one's gender (e.g., Cameron & Lalonde, 2001; Kiefer & Sekaquaptewa, 2007). This dimension taps primarily into the centrality of gender identity in the self-concept. Internal consistency for the subscale of identity (irrespective of gender) has been confirmed across several samples of undergraduates at a large north-

eastern university in the US. Reflecting the typical items of scales assessing group identification (see e.g., Doosje et al., 1995), four items are generally included: "*Being a woman/man is an important reflection of who I am*", "*Being a woman/man is an important part of my self-image*", "*Being a woman/man is unimportant to my sense of what kind of person I am* (reverse coded)", "*Being a woman/man has very little to do with how I feel about myself* (reverse coded)". Although this scale has been shown to be predictive of a number of gender-related outcomes and rather easy to implement in a survey, it focuses only on the centrality of identity for self-definition and does not cover other dimensions (such as satisfaction or in-group homogeneity). Furthermore, one of the shortcomings of gender identification scales is that they are meant to be used only by participants who have previously categorized themselves into a particular group. It may be difficult to assess the extent to which "being a woman may be an important part of my self-image" if participants have identified themselves as men beforehand. This does not therefore allow for an assessment of the degrees of identification for both gender categories and would reproduce the assumption that gender only contains mutually exclusive binary categories.

*The Multi-Gender Identity Questionnaire.* Behind the previous measures presented is another implicit idea that gender identity would be necessarily binary, and that only the categories of male and female could form a basis for self-definition. Yet, as we pointed out above, gender identity goes beyond a simple dual categorization between male and female. Individuals may reject traditional gender categories and define themselves through alternative categories (Factor & Rothblum, 2008; Johnson & Wassersug, 2010; Kuper et al., 2012; Nowakowski et al., 2016; Tate et al., 2014). Studies on the experiences of transgender people and the ways they define their gender identity suggest that they reflect on themselves in ways that often transcend the categorization between male and female (Diamond & Butterworth, 2008; Diamond et al., 2011; Matsuno & Budge, 2017; Richards et al., 2016). Many theories have also echoed the idea that gender is a complex and multidimensional construct (Diamond et al., 2011; Egan & Perry, 2001; Fausto-Sterling, 2012). The Multi-Gender Identity Questionnaire (Multi-GIQ; Jacobson & Joel, 2018; Joel et al., 2014) has been developed against that backdrop. Initially developed to assess gender dysphoria, the Multi-GIQ captures gender identity by taking into account that participants may possibly feel a mismatch between the sex assigned at birth and their self-defined gender. In particular, this scale considers individual's sense of being female, male, both or neither, as well as the difficulties in expressing one's gender or the wish to belong to another gender. It includes four dimensions, such as the feeling of being a man and a woman (e.g., "*In the past 12 months, have you thought of yourself as a woman/man?*"), contentment with one's gender and the wish to belong to the other gender (e.g., "*In the past 12 months, have you felt satisfied being a man/woman?*", "*In the past 12 months, have you had the wish or desire to be a man/woman?*"), gender performance or enacting a gender in what one does (e.g., "*In the past 12 months, have you felt that you have to work at being a woman/man?*") and compliance with gender norms (e.g., "*In the past 12 months, have you worn the clothes of the other sex?*"). In total, the Multi-GIQ comprises 32 statements about various self-perceptions on which participants are asked to indicate how often they have experienced them over the past year (from "always" to "never"). The scale was constructed from previous questionnaires (e.g., Deogracia et al., 2007) and was administered to a sample of Israeli participants for validation. In spite of its numerous assets, this measure remains quite long to complete, and its convergent and predictive validity have not been examined, which tends to preclude from concluding about its internal reliability.



*Suggestion for a short scale.* Building on the developments of the scales presented above, the creation of our scale of gender identity aimed to address several concerns. First, it is important that the scale can be able to offer participants the opportunity to express their gender identity on a continuum (and not through static categories) and to indicate on graduated scales, ranging from “not at all” to “absolutely”, how much they feel a gender category defines them personally. Second, we believe that it is crucial to ask simultaneously participants the extent to which they identify with both male and female categories. We therefore propose to include two items assessing the degree of identification with men and women. A simple formulation for which we opt is “do you consider yourself as a...”. Through these two questions, it will make it possible to measure the levels of identification with both gender categories. Depending on the answers, we will be able to capture those who do not use either of the gender categories to form their gender identity (i.e., weak identification with both male and female categories) and those who use both categories (i.e., strong identification with both male and female categories). Third, the scale must be inclusive of people with non-binary gender identities and must allow for people who do not identify through the traditional male/female binarity to be able to respond. Insofar as the alternative response category “other” (in addition to a free-text response) would be likely to elicit negative responses, as it suggests that people who are neither male nor female would not fall into the “normal categories” (see Lindqvist et al., 2020), one option could be to provide all the alternative gender categories. However, these are likely to be too numerous and may not be able to comprehensively cover all extant options (including those who refuse to label their gender identity or who do not know which one to choose). We have therefore opted for a single, more general item, assessing the extent to which participants consider their “gender identity as being outside of the man/woman dichotomy”. In this way, we avoid the limitations of explicitly labelling alternative categories while capturing identifications of people who define themselves beyond the categories of man and woman without knowing or wanting to name a new category. Therefore, our scale is composed of three items and a single dimension, which are to be answered on 7-point scales ranging from 1 = Not at all to 7 = Yes Absolutely. The items are presented in Table 3.

Table 3. Short scale of gender identity

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<i>“Do you consider yourself as a woman?”</i>
<i>“Do you consider yourself as a man?”</i>
<i>“Do you consider your gender identity as being outside of the man/woman dichotomy?”</i>

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Moreover, a measure of sex assigned at birth may still reveal useful in order to learn more about respondents’ gender-based identity, irrespective of the sense of identification to the gender categories. This would notably enable to evaluate more clearly gender dysphoria. We suggest two ways to measure the sex assigned at birth: one is to ask directly to respondents: “What is your sex assigned at birth?” (response categories: male or female). However, based on own research experiences, this question turns out to be often difficult to answer for people who are not familiar with gender issues. We therefore propose this alternative question: “What is your sex such as indicated on your ID?” (response categories: male or female).

### 2.3. Measures of Perceived Gender Discrimination

Measurement of individual perceptions of gender discrimination has been fairly well documented. These measures generally ask participants<sup>3</sup> to report whether they have experienced sexist discrimination events in a certain context and how often. To date, a large number of scales have been developed, including some focusing on specific settings, such as the school environment (e.g., the Perceived Subtle Gender Bias Index; Tran et al., 2019) or the workplace (e.g., the Gender Bias for Women Leaders; Diehl et al., 2020). However, here we will focus only on broader, non-context specific, measures of gender discrimination. More specifically, we will review the Schedule of Sexist Events, the Experiences with Benevolent Sexism Scale and The Experiences with Ambivalent Sexism Inventory.

*The Schedule of Sexist Events.* The Schedule of Sexist Events (SSE; Klonoff & Landrine, 1995) was designed to measure the frequency with which women have experienced events where they were discriminated against because of their gender. It is a 20-item scale covering a wide range of everyday contexts that asks participants to report the frequency of different types of sexist events they have experienced because they are women (e.g., "*inappropriate or unwanted sexual advances*", "*insults*", "*sexist jokes or degrading sexual jokes*"). Response scales range from 1 (= the event never happened) to 7 (= the event happens almost all the time). The items also examine a variety of perpetrators of sexist acts (e.g., "teachers or professors", "employer' boss' or supervisors", "co-workers' fellow students or colleagues", "boyfriend' husband", "family"). Each item is completed twice: 1) first to measure the frequency of sexist events in the whole life and 2) second to measure the frequency of sexist events that have happened in the past year. The SSE includes four sub-dimensions: sexist degradation (e.g., *how many times have you gotten into an argument or fight about something sexist?*), sexism in distant relationships (e.g., *how many times have you been treated unfairly by neighbours?*), sexism in close relationships (e.g., *how many times have you been treated unfairly by your family?*), and sexist discrimination in the workplace (e.g., *how many times have you been treated unfairly by your employer, boss or supervisors?*). The measure has been validated in a large sample of 631 women who were mostly approached on a college campus in the US. This measure has a good overall validity and was found to be predictive of several measures of stress and well-being (Klonoff & Landrine, 1995). However, only one form of sexist discrimination, explicitly negative and unfair to women, is covered by the SSE.

*The Experiences with Benevolent Sexism Scale.* Echoing the idea of a distinction between overt and subtle forms of sexism, more recent scales have shifted toward accounting for more subtle and positive experiences of gender discrimination. One example is the Experiences with Benevolent Sexism Scale (EBSS) by Oswald et al. (2019). This measure builds on Glick and Fiske's (1996) distinction between HS and BS and assesses the frequency of experiences of BS that women may have had in the past year or in their lifetime. In this sense, the SSE measures women's experiences with overtly sexist events. This distinction is important because experiences of HS are likely to have a significant impact on women's mental health and well-being (Klonoff et al., 2000), and to elicit strong short-term reactions (Pacilli et al., 2019), whereas experiences of BS, as appearing less clearly and more favourably in the eyes of women (Barreto & Ellemers, 2005; Killianski & Rudman, 1998; Swim et al., 2005), may result in high anxiety in the long term (Salomon et al., 2015) or lower performance (Dardenne et al., 2007; Gervais & Vescio, 2012), without women even being able to know to what they can attribute them. In general, HS tends to elicit intense but short anger responses, whereas BS

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<sup>3</sup> It is important to note that most of the current scales of gender discrimination focus on women and neglect men's experiences of discrimination. We attempted to address this issue in the suggested scale.

may provoke less rumination and negative thoughts but more sustainably (Pacilli et al., 2019; Salomon et al., 2015).

This measure focused on experiences of BS by following the three sub-dimensions of BS as specified by the ambivalent sexism theory. In total, it includes 25 items. Factor analyses yielded an acceptable internal reliability and gave adequate evidence for its three-dimensional structure. The heterosexual intimacy dimension includes 10 items (e.g., "*How frequently in the last year have you been put on a pedestal by your romantic partner?*"), the complementary gender differentiation dimension comprises 7 items (e.g., "*How frequently in the last year have people assumed that you will interrupt your career or educational plans to take care of family needs (such as a sick family member or provide childcare)?*") and the protective paternalism dimension has 8 items (e.g., "*How frequently in the last year have people questioned your ability to handle situations by yourself?*"). The response categories and instructions are the same as the SSE.

*The Experiences with Ambivalent Sexism Inventory.* Recently, Salomon et al. (2020) have developed and validated The Experiences with Ambivalent Sexism Inventory (EASI). This scale comprises both hostile and benevolent sexist discrimination experiences (while the EBSS only considered BS) and has the advantage of being adaptable to various contexts (e.g., workplace, university). The EASI measures the frequency of experiences in which women have been the target of hostile and benevolent sexist acts. The EASI, in its original form, includes 28 items, but 20-item and 10-item short forms have also been constructed and validated. Development of the scale has been conducted across two samples of 540 and 641 adult women living (or who had lived) in the US. Two first-order factors of HS and BS were identified. Regarding HS, the authors found two second-order factors: one factor of HS with 8 items (e.g., "*How often have you been ignored/overlooked because of your gender?*") and one factor of heterosexual hostility with 6 items (which corresponds to a dimension of HS such as theorized in the ambivalent sexism theory; e.g., "*How often have you been accused of using sex to control men?*"). Regarding BS, factorial analyses revealed three second-order factors: one factor related to heterosexual intimacy with 6 items (e.g., "*How often have you been treated as if men depend on you for their personal happiness?*"), a second factor of protective paternalism with 4 items (e.g., "*How often have you been treated more gently or delicately than men are?*") and a third factor tapping into complementary gender differentiation with 4 items (e.g., "*How often have you been treated as if you are more innocent than men are?*").

*Suggestion for a short scale.* Following the scales previously described, several features seem essential to be considered in the construction of our short scale of gender-based discrimination. First, it is fundamental that the scale reflects the idea that the experiences of gender discrimination are two-faceted. They involve both experiences of negative discrimination and experiences of subtle or positive discrimination. Therefore, following the EBSS and EASI, we decided to propose items that would cover both dimensions. The negative discrimination items assess the extent to which people have experienced events or situations in which they have been victims of adverse treatments because of their gender. To build them, we partly drew on the scale used by Schmitt et al. (2002)<sup>4</sup>, from which three items were created. The first item asks about experiences of gender discrimination in general: "*Have you personally been a victim of discrimination because of your gender?*". This item will provide an

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<sup>4</sup> This scale has not been subjected to a psychometric validation process and was only used in the context of a study that aimed to evaluate the influence of gender discrimination on men and women's well-being. Consequently, we did not report it above.

overall indicator of discrimination and can include experiences of discrimination that are not covered by the other items. The next two items deal with specific discrimination experiences. The first one addresses intense experiences of discrimination. Respondents are instructed to report how often they have experienced situations of harassment, aggression, or violence (sexual, verbal, psychological): *"Have you personally been a victim of harassment, aggression, or violence (e.g., sexual, verbal, psychological) because of your gender?"*. The second one is about discrimination in the workplace context (where discrimination acts are known to be highly prevalent). More concretely, it asks about professional opportunities that individuals may have been deprived of because of their gender: *"Have you personally been deprived of professional opportunities (about hiring, tasks sharing, salary) because of your gender?"*. The items of positive discrimination, on the other hand, assess the extent to which people have been discriminated against in an advantageous manner because they were a man or woman. Based on the EBSS and EASI scales, we suggest two items. The first one is designed to assess experiences in which respondents had received preferential treatments (such as compliments or rewards) because of their gender: *"Have you personally received preferential treatments or special consideration (e.g., compliments, rewards) because of your gender?"*. The second item focuses on experiences of receiving special help or support: *"Have you personally been offered special assistance or support because of your gender?"*.

Furthermore, one shortcoming with the measures of perceived discrimination is that they only assess women's perceptions of discrimination and overlook men's experiences. However, men can also experience sexism at the hands of women or other men. Therefore, we suggest integrating both men and women's discrimination experiences. For each item, we propose an inclusive formulation with the addition of "because of your gender" at the end of each statement. By assessing positive discrimination experiences, one of the benefits of our scale is that it will make it possible to evaluate the degree to which men are likely to be perceptive of the privileges granted by their dominant status and investigate which are the antecedents and consequences of such a perception. In total, we therefore suggest five items to measure perceived gender discrimination, broken down into two dimensions. Similar to the EASI, the items are rated on 7-point scales with each point labelled as follows: 1 = This has never happened to me, 2 = This has happened very rarely (less than once per month), 3 = This has happened rarely (about once per month), 4 = This has happened sometimes (about twice per month), 5 = This has happened often (about once per week), 6 = This has happened frequently (about twice per week), 7 = This has happened very frequently (more than twice per week). Table 4 presents the items in detail.

Table 4. Short scale of perceived gender-based discrimination

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**Negative discrimination experiences**

*“Have you personally been a victim of discrimination because of your gender?”*

*“Have you personally been a victim of harassment, aggression, or violence (sexual, verbal (e.g., jokes, insults), psychological) because of your gender?”*

*“Have you personally been deprived of professional opportunities (in hiring, tasks sharing, salary) because of your gender?”*

**Positive discrimination experiences**

*“Have you personally received preferential treatments or special consideration (e.g., compliments, rewards) because of your gender?”*

*“Have you personally been offered special assistance or support because of your gender?”*

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### 3. DISCUSSION

The purpose of this article was to review the most commonly used measures in social psychology to assess sexism, gender identity, and perceived gender discrimination. Three to five scales were described for each of these variables, ranging from the oldest to the most recent. Additionally, we suggested short scales that we hope to see further incorporated into large-scale surveys. These include three to seven items in total and were developed on the basis of the scales most commonly or recently employed in social-psychological research. It is important to note, however, that these scales have not even been empirically validated, and that they are only suggestions. Future works are thus needed to test their reliability and internal validity. Although limitations have been mentioned above for each measure presented, we wish now to point out some more general limitations.

#### 3.1. Limitations

The measures reviewed in the present article contain some limitations. First, an important limitation is that gender measures are generally self-reported measures. Although this is not always the case, they may be highly open to social desirability bias, with individuals being pressured to respond in a way to conform to egalitarian gender norms. Against this backdrop, Hamby (2016) has shown that some gender-related measures induce parity between men and women while others, supposedly tapping into the same construct, produce strong differences. As a function of the topic or the manner the questions are asked, respondents may infer researchers' intentions and guess what is “the right answer”, that is, a socially accepted answer. As alternatives to self-reported measures, implicit measures<sup>5</sup> can turn out to be of interest as they allow to capture individuals' attitudes without participants having conscious control over their expression. In a manner of speaking, they reveal individuals' opinions “beneath the surface”. Implicit measurement techniques have been used extensively to study gender stereotypes and have been shown to be highly predictive of performance and

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<sup>5</sup> Implicit measures are a range of techniques that aims to capture automatic psychological associations, attitudes, or beliefs that respondents are either not consciously aware of, or unwilling to openly report, notably due to social desirability concerns. One of the most common measure is the Implicit Association Test.

behaviour (in the context of science-gender stereotypes, see e.g., Kiefer & Sekaquaptewa, 2007; Nosek et al., 2009). However, they are highly time-consuming, complex to implement in real-life settings (e.g., classroom contexts) and offer relatively limited insights. Insofar as they are designed to assess automatic and uncontrollable reactions in terms of personal liking/disliking toward a construct or cognitive associations between two concepts (e.g., math and male), they cannot inform on the very content of people's attitudes or the nature of the relationships between concepts, and overlook the subtleties related to the meaning that people make to gender issues.

A second limitation is that a large majority of the measures reviewed here have been validated on American samples, sometimes even more specifically on American student samples (e.g., the AWS, the ASI, the BSRI). This may lead to a significant bias in the transposition of the scales to non-US contexts. One may indeed reasonably assume that the validity of the scales is not always appropriate or that certain dimensions (or items) do not make necessarily sense in other cultural or national contexts. This is particularly the case for attitude measures. Indeed, beliefs and stereotypes about women and men are shaped by gender norms, attachment to traditional values, and feminist struggles that have developed over time and are specific to a given culture or country. In this sense, the research of Glick et al. (2000) showed that the structure of the ASI was consistent across 19 different countries in the world, but also highlighted important variations across countries in the HS and BS scores, as well as in the correlations between HS and BS and in the differences between men and women. In this vein, some scales have been developed to assess gender beliefs within and for specific cultural contexts. One example is the Machismo and Caballerismo Scale (Arciniega et al., 2008), which measures attitudes toward masculinity in the specific context of Mexican culture. Through this scale, it has been proposed that the norms of masculinity in Mexico are structured around a negative dimension related to male dominance and hyper-masculine behaviours (e.g., aggression, violence, alcohol consumption) and a more positive dimension associated with chivalry, honour, and family. Therefore, while some of the scales display cross-cultural consistency, we encourage researchers to align with the particularities of each culture and validate their measurement tools in a variety of national and cultural contexts. In addition, for those living outside of the US, we recommend validating, in the context of their country or culture, the scales that have already been validated in the US to ensure their generalizability and, where needed, to adjust them accordingly.

A third limitation, that part of the present review was meant to address, is that most of the scales are long to complete. The average number of items is nearly 25, which may still be too long to be embedded easily in large opinion surveys. This precludes from evaluating relationships between the constructs examined and others important ones (e.g., well-being, health, performance at school) across large-scale representative samples of participants. Although researchers may think that development of short scales contravenes to sound validation process and can harm reliability of the assessment of the constructs examined, rigorous standards have been suggested to construct valid short forms (see Rammstedt & Beierlein, 2014; Smith et al., 2000). It is thus conceivable to incorporate more largely contemporary gender measures in large-scale surveys, which would reveal to be a considerable gain for social-psychological research. Therefore, we would recommend more attention from researchers to develop shorter measurement scales.

A fourth limitation pertains specifically to the measures of attitude. These are designed in such a way that respondents are instructed to report their personal endorsement of a given statement. It is assumed that the more one "agrees" with the statement in question, the more

it reflects personal opinion. However, we argue that responses to the statements can indeed measure individuals' personal agreement, but they can equally measure the level of knowledge of social norms without respondents necessarily agreeing with them. For example, imagine that respondents are instructed to complete a measure of sexism by indicating how much they agree with the following statement: "*A female leader would not be taken seriously*". Answering "yes" might mean that they truly think that women cannot be leaders, but it may also be that they want to express the idea that women would presumably not be taken seriously as leaders in our society, despite the fact that this is something they may otherwise deplore. If this is correct, this might have strong implications on assessment of gender beliefs. Measures of sexism would not evaluate sexism in the sense of how people personally adhere to an ideology or belief system aimed at maintaining masculine domination over women, but rather in the sense of how people perceive there is a sexist climate in society. Put differently, the measures of sexism would reveal the extent to which respondents are aware of socialization differences between men and women and that individuals behave in accordance with the socially constructed roles of their assigned gender. One way to address this issue might be to emphasize to participants the idea that the measurement items must be considered as referring to what female and male essentially, and not socially, are. Concretely, we suggest including, for each statement composing the measures of sexism, particular terms or expressions that may convey an impression of essentialisation, such as "by nature" (e.g., "*By nature, women cannot be leaders*"). This may allow to indicate more explicitly that participants are asked about their personal views on men and women and not about their knowledge of gender norms.

A fifth limitation is about the measures of identity. They assess self-identifications with men or women without investigating the meaning that people give to masculinity or femininity. Yet, definitions of gender categories can vary considerably according to individuals' socio-economic backgrounds (Abreu et al., 2000) or attitudes toward gender roles (McCabe, 2005). This way, various understandings of gender identities can be mixed in participants' responses to identity measures, which may evidently produce different impacts on attitudes and behaviours. Accordingly, more attention should be given to that issue in constructing future measures of gender identity.

Finally, we wanted to point out some caveats regarding the discrimination measures. In most cases, these measures encourage participants to report events of gender discrimination that they have experienced in their lifetime. However, the accuracy of these measures may be strongly affected by the difficulty in remembering such events correctly. The older the event, the more likely it is that respondents are not able to have good recollection when completing a questionnaire. In addition, recall may vary by the degree of violence caused by the event. The more intense it was, the more likely respondents can remember it. Therefore, it is plausible that "softer" or benevolent sexist discrimination events are more difficult to recollect (and therefore are less reported) as they appear more positively. As a consequence, we want to raise researchers' attention on further considering these memory biases in the measurement of gender-based discrimination experiences.

### 3.2. Concluding remarks

A great deal of scales have been developed to measure and account for gender inequalities. In line with the psychosocial perspective that emphasizes the role of attitude, identity, and individual experience in the understanding of gender issues, we focused here on measures of

sexism, gender identity and perceived gender discrimination. For each of these variables, an imposing number of measurement tools have been developed and validated over the last 30 years. Nevertheless, it seems to be fundamental to further pursue this trend in order to refine and improve our knowledge of how gender affects men's and women's behaviour. It is imperative that researchers multiply their efforts in the direction of building useful instrumentations that can capture the subtleties of gender beliefs or identities that are currently emerging. Thus, we encourage researchers to improve the development of reliable and valid measurement scales that can adapt to societal changes, as the BSS was a recent attempt to. Attitudes and beliefs regarding gender issues evolve over time and require updates and refinements in measurement to be captured adequately. In the view of the more egalitarian climate and the widespread sensibility to feminism in mainstream culture (Gill, 2007), a focus on more subtle, positive, forms of sexism seem to be particularly needed. Concomitantly, it cannot be denied that a revival of traditional and hostile sexist ideologies is on the rise in today's society. Masculinist or anti-feminist discourses abound on social networks and tend to resonate among an increasingly large public (see Preston et al., 2021). Some men today no longer hide their hatred of women (and especially feminist women) and their clear desire to maintain and reinforce the gender hierarchy. It is therefore essential to develop appropriate tools to capture such developing forms of anti-feminist ideology which may be itself at the intersection of social characteristics such as age, sexual orientation, or socio-economic status. Moreover, it is fundamental that gender-related measures are more developed, and administered to participants, by considering how they relate to each other. As explained above, attitudes, identities, and individual experiences are closely interwoven. It is in the meaning that individuals ascribe to what masculinity and femininity are (or should be) that one understands what it means for them to "be a man" or "a woman" and, consequently, what causes gender discrimination. Undoubtedly, all these aspects should be taken into consideration in the analysis of gender differences and should be measured in concert.



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