

## Change and Continuity in Gender Stereotypes: Evidence from Content, Methods, and Impact

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### Abstract

Gender stereotypes, as a form of social cognition, are widespread beliefs regarding the characteristics, attributes, and behaviors of men and women. Against the backdrop of broad social change, researchers have examined the evolution of gender stereotypes through traditional methods (past-present-future evaluation paradigm, cross-sectional sequential design, cross-temporal meta-analysis) and recent technologies (word embeddings). Although a few studies claim that gender stereotypes have not changed over time, the majority of research, grounded in social role theory, supports that gender stereotypes have indeed undergone temporal changes. The pattern of change is primarily characterized by the perception that women are increasingly ascribed masculine traits (such as agency), while men may be increasingly ascribed feminine traits (such as communality). These changes have positive effects on narrowing economic gender disparities, but may also entail negative consequences for family and health. Future research should investigate the evolution of gender stereotypes from a refined approach and network perspective, based on interdisciplinary integration and methodological fusion, with particular emphasis on examining this topic within the context of Chinese culture.

### Full Text

#### Preamble

#### Have Gender Stereotypes Changed or Remained Stable? Evidence from Content, Methods, and Impacts

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**Abstract:** Gender stereotypes, as a form of social cognition, represent widely held beliefs about the characteristics, attributes, and behaviors of men and

women. Against the backdrop of sweeping societal changes, researchers have examined the evolution of gender stereotypes through both traditional methods (e.g., past-present-future rating paradigm, cross-sequential design, cross-temporal meta-analysis) and emerging technologies (e.g., word embedding). While a handful of studies claim that gender stereotypes have remained unchanged over time, the majority of research grounded in social role theory supports the view that gender stereotypes have indeed shifted. The predominant pattern of change reveals that women are perceived as increasingly possessing masculine traits (such as agency), while men may also be perceived as increasingly possessing feminine traits (such as communion). These changes have contributed positively to narrowing economic gender gaps, yet they may also carry negative consequences for families and health. Future research should investigate gender stereotype change through more refined approaches and network perspectives, integrating multidisciplinary and multi-method frameworks, with particular emphasis on examining this topic within the Chinese cultural context.

**Keywords:** societal change, gender stereotype change, social role theory, agency, communion

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*There is nothing so obdurate to education or criticism as the stereotype.*  
—Walter Lippmann (1922, p. 99)

Stereotypes have evolved from early conceptualizations as “mental pictures” of specific groups (Lippmann, 1922) to contemporary definitions as general beliefs about the characteristics, attributes, and behaviors of individuals belonging to social categories (Eagly & Koenig, 2021). Over a century of research has expanded the domain of stereotype studies from race (Garg et al., 2018) to gender (Ellemers, 2018), age (Hummert, 2015), sexual orientation (Hancock et al., 2020), and social class (Durante & Fiske, 2017). Meanwhile, the traditional notion that “stereotypes are difficult to change”—as reflected in Lippmann’s view above—has been challenged by the reality that human culture and psychology are continuously evolving, particularly amid deepening global multipolarity, economic globalization, cultural diversification, and social informatization over recent decades (Huang et al., 2018). This raises a fundamental question: Have stereotypes changed over time?

Theoretically, although numerous researchers have explored patterns, methods, mechanisms, and even neurophysiological structures underlying cultural and psychological change (Cai et al., 2023; Cai et al., 2019; Kwon et al., 2021; Var-num & Grossmann, 2017), research on stereotype change remains in its infancy (Charlesworth & Banaji, 2022a; Eagly et al., 2020). Practically, while stereotypes can reduce cognitive demands by simplifying representations of individuals and enabling faster information processing (Gershman & Cikara, 2023), they can also produce a range of negative effects on individuals’ psychology and behavior through stereotype threat (Spencer et al., 2016). Therefore, understanding whether stereotypes have changed is crucial for advancing stereotype research

and for developing strategies to reduce or eliminate stereotypes. Against the grand backdrop of social change, both macro-level factors such as sociopolitical, economic, and cultural shifts and micro-level factors such as changes in social members' psychology and behavior create possibilities for stereotype change. For instance, in terms of cultural values, people's orientation has shifted from traditional values (e.g., male superiority) to modern values (e.g., gender equality) (Cai et al., 2020), which may gradually dilute gender stereotypes. Regarding self-concept, individuals increasingly construe themselves as independent, valuing autonomy, self-expression, and uniqueness (Markus & Kitayama, 1991; Huang et al., 2018). Since stereotypes represent general beliefs about social categories, they may elicit negative reactions from individuals (Wang & Guan, 2021), thereby motivating people to gradually avoid stereotypes.

Given that current research on stereotype change has concentrated primarily on gender stereotypes—providing substantial empirical evidence for review—and that gender stereotypes are more resistant to change than other domains (e.g., race, ethnicity, and religion) (Fiske, 2017), evidence of change in this relatively stable domain would suggest that stereotypes in other domains are also likely malleable. Accordingly, this review systematically examines research on gender stereotype change from three perspectives: content (change vs. stability), methods (traditional vs. emerging), and impacts (positive vs. negative). Our aim is to provide researchers with a comprehensive overview of this emerging topic and to stimulate future research through our forward-looking discussion.

## 1.1 Gender Stereotypes Have Changed

According to social role theory, people are not born with stereotypes but acquire them through observing social roles in the process of social cognition (Eagly & Koenig, 2021). Specifically, perceivers first categorize target individuals based on attributes such as gender, race, or age; they then infer the psychological attributes of these groups and form corresponding beliefs based on observations of category members' behaviors, which typically occur in social role contexts that elicit particular types of behavior (Eagly & Koenig, 2021). Stereotypes gradually emerge from this combination of social categories and social roles. Regarding gender stereotypes, women historically assumed primary responsibility for family care, displaying nurturing characteristics, while men served as breadwinners, demonstrating competence. Through observation of these gendered social roles, women came to be stereotypically viewed as communal—pursuing relationship maintenance and belonging, emphasizing warmth and morality—whereas men were stereotyped as agentic—pursuing goal achievement and task performance, emphasizing confidence and competence (Hentschel et al., 2019). Since gender stereotypes originate from observations of men's and women's social roles, when men and women appear in contexts inconsistent with their traditional roles and exhibit role-incongruent behaviors, perceivers' stereotypes may gradually change (Eagly & Wood, 2012; Koenig & Eagly, 2014). Indeed, gender roles have been changing over recent decades: women's labor force participation has

increased while men's has decreased (Eagly et al., 2020); women's representation in STEM fields has grown, while men's entry into healthcare, early childhood education, and domestic roles has also increased (albeit more slowly; Croft et al., 2015); and women have increasingly assumed leadership roles in management and politics (Feenstra et al., 2023; van der Pas et al., 2023). When people directly or indirectly observe these role changes, they update their existing gender stereotypes, leading to change. In short, social change drives shifts in social roles, which in turn produce stereotype change. Additionally, research from a structure learning perspective proposes that stereotype change serves to track the distribution of group characteristics: when the underlying parameters governing these distributions change, stereotypes change accordingly (Gershman & Cikara, 2023). However, because this explanation relies on Bayesian inference and is relatively complex, researchers more commonly use social role theory to explain gender stereotype change.

Grounded in social role theory, numerous studies from countries worldwide have found that gender stereotypes have changed or are changing, including research from the United States (Andrich et al., 2023; Bhatia & Bhatia, 2021), Romania (Curseu & Pop-Curseu, 2018), Ghana (Bosak et al., 2018), the Netherlands (Feenstra et al., 2023), Sweden (Gustafsson Sendén et al., 2019), Spain (Lopez-Zafra & Garcia-Retamero, 2012, 2021; Moya & Moya-Garófano, 2021), the United Kingdom (Hargrave & Blumenau, 2022), and other European countries such as Germany, Austria, and Switzerland (Zehnter et al., 2018). Some studies have found that people perceive women as increasingly possessing masculine traits (e.g., agency) over time, while men's possession of feminine traits (e.g., communion) remains relatively stable and unchanged (Donnelly & Twenge, 2017; Gustafsson Sendén et al., 2019; Lopez-Zafra & Garcia-Retamero, 2012). For example, Eagly et al. (2020) conducted a cross-temporal meta-analysis of 16 public opinion polls on gender stereotypes in the United States from 1946 to 2018, finding that women's relative advantage in communion increased over time, while men's relative advantage in agency showed no significant change. Additionally, compared to men, women were perceived as more competent. This suggests that, compared to earlier periods, contemporary Americans stereotypically view women as possessing advantages not only in communion but also partially in competence.

In contrast, other studies have found that people perceive increases in both women's masculine traits and men's feminine traits over time (Lopez-Zafra & Garcia-Retamero, 2021; Zehnter et al., 2018). For instance, Bosak et al. (2018) asked Ghanaians to rate the likelihood that men or women possessed gender-stereotypical characteristics at three different time points (past, present, future), finding that Ghanaians believed counter-stereotypical characteristics for both women and men increased from past to present to future, particularly regarding women's masculine personality and cognitive traits and men's feminine personality and physical appearance traits.

The inconsistent findings regarding changes in male stereotypes may stem from

greater cross-cultural variation in how people define male characteristics compared to female characteristics (Cheryan & Markus, 2020). For example, Korean culture more readily accepts men displaying communal traits than American culture, which emphasizes “masculine, robust” definitions of men. Therefore, the likelihood of men exhibiting feminine characteristics varies across cultures, leading to potential differences in male stereotypes. Additionally, different studies employ different methods (see Methods section), which may also contribute to divergent findings. Regardless of whether male stereotypes have changed, the dynamic nature of female stereotypes reveals that gender stereotypes have changed over time and will continue to do so. Importantly, these changes occur not only at the explicit level but also at the implicit level, though to a lesser degree (Charlesworth & Banaji, 2022a; Charlesworth, Sanjeev, et al., 2023).

## 1.2 Gender Stereotypes Have Not Changed

Despite substantial evidence supporting gender stereotype change, some researchers argue that stereotypes have remained stable over time. For example, Haines et al. (2016) examined American gender stereotypes from 1983 to 2014 by comparing participants’ characteristic ratings of men, women, and individuals (undefined by gender) collected in 2014 with data from 1983. The results showed that, consistent with the 1983 findings, participants in 2014 still perceived large differences between men and women across stereotype components (including traits, behavioral roles, occupations, and physical appearance), viewing men as more agentic and women as more communal. The similarity across three decades suggested stability and lack of change in gender stereotypes. More recently, a study using word embedding technology to analyze gender stereotypes related to education in the Corpus of Historical American English from 1930 to 2009 found that while some stereotypes became more polarized (e.g., stronger associations between women and learning, men and intelligence), core gender stereotypes of women as communal and men as agentic remained unchanged (Boutyline et al., 2023).

Several explanations may account for these findings: (1) According to the backlash hypothesis, individuals who break or violate stereotypes face social and economic penalties (Rudman et al., 2012). For instance, women risk social sanctions for displaying leadership traits such as competence, confidence, and ambition (Mishra & Kray, 2022). Therefore, those who support gender stereotype change may choose to endorse existing stereotypes to avoid punishment from those who use stereotypes as normative standards. (2) Perceptual bias hypotheses related to confirmation bias, illusory correlation, and self-fulfilling prophecies suggest that beliefs about gender differences can be maintained and intensified based on subjective assumptions rather than objective evidence. This means that even when people see objective evidence of similarity between men and women across numerous psychological variables, they may still focus on large differences (Haines et al., 2016), thereby maintaining gender stereotypes. (3) The cultural lag hypothesis posits that different components of social culture

change at different rates during societal transformation. Therefore, the stability of gender stereotypes may reflect that social attitudes and beliefs lag behind actual social changes (Diekmann et al., 2010).

### 1.3 Summary

Overall, studies supporting gender stereotype change, despite minor variations in specific content, generally converge on a pattern where women are perceived as increasingly masculine (e.g., agentic) and men may be perceived as increasingly feminine (e.g., communal). Studies supporting stability primarily argue that women's advantage in communion and men's advantage in agency have not diminished. In other words, the change perspective emphasizes that the gap between gender stereotypes is narrowing over time, whereas the stability perspective stresses that fundamental differences in stereotype content remain largely unchanged. While both perspectives have theoretical support, empirical evidence more convincingly favors the change perspective, as demonstrated by greater quantity, broader geographic and cultural scope, and more diverse methodologies. Therefore, there is good reason to believe that gender stereotypes have changed or are changing. However, male stereotype change appears more complex than female stereotype change and warrants further investigation. Notably, current research on gender stereotype change has focused predominantly on developed Western countries, likely because economic development, urbanization, and education in these nations drive declines in traditionalism and increases in modernity, thereby transforming gender role beliefs and status and pushing gender stereotypes toward greater equality (Zhang & Pan, 2021). This raises important questions: Do gender stereotypes change in countries with less developed economies? If so, what patterns characterize such change? Future research must address these questions. Furthermore, while stereotype change research has concentrated on gender, social role changes extend beyond gender to involve race, age, sexual orientation, and social class. According to social role theory, these changes should also trigger corresponding stereotype changes. Therefore, future research should actively explore whether stereotype change occurs in these other domains as well.

## 2 Traditional Research Methods and Emerging Technologies for Studying Gender Stereotype Change

In social change research, cross-temporal comparisons generally fall into three categories: survey data-based time analysis, cross-temporal meta-analysis of previously published data, and archival data-based cross-time analysis (Cai et al., 2023). Although gender stereotype change research generally follows these approaches, specific implementations vary. This review therefore categorizes research methods into traditional approaches and emerging technologies based on their chronological development.

## 2.1 Traditional Research Methods

**2.1.1 Past-Present-Future Rating Paradigm** The most common method in early gender stereotype change research involved comparing participants' ratings of men and women across different time periods to examine stereotype change. Specifically, participants were randomly assigned to one of three time conditions (past, present, future) and asked to rate the likelihood that men or women possessed stereotypical characteristics (typically drawn from established word lists or researcher pretests). Comparisons across these three conditions revealed whether gender stereotypes exhibited dynamic change (Diekmann & Eagly, 2000; Diekmann et al., 2005; Wilde & Diekmann, 2005). Although this method resembles the retrospective panel design in survey-based time analysis, it differs by including not only retrospective assessments of the past but also prospective assessments of the future. Given its distinctive feature of three temporal orientations, we refer to this as the past-present-future rating paradigm. For example, Lopez-Zafra and Garcia-Retamero (2012) used this paradigm to have participants rate the likelihood that a typical man or woman in 1950 (past condition), a typical man or woman (present condition), or a typical man or woman in 2050 (future condition) possessed gender-stereotypical characteristics. The results showed that women were perceived as becoming more masculine, whereas men were not perceived as becoming more feminine over time.

**2.1.2 Cross-Sequential Design** Some researchers prefer cross-sequential designs, which compare gender stereotype data collected at different time points. These comparisons take two main forms. One approach involves comparing data from existing databases across different years. For instance, Charlesworth and colleagues have used the massive Project Implicit database (<https://www.projectimplicit.net>) to investigate changes in multiple stereotypes, including gender. Using autoregressive integrated moving average (ARIMA) time series models—which effectively account for temporal autocorrelation, accommodate nonlinear and seasonal patterns, and forecast future trends (Jebb et al., 2015; for time series analysis, see Cai et al., 2023)—they analyzed 1.4 million implicit and explicit gender stereotype responses from the United States between 2007 and 2018. The results showed that both implicit and explicit gender stereotypes (including academic stereotypes of men = science and women = humanities, and occupational stereotypes of men = career and women = family) weakened by 13%–19% over this 12-year period (Charlesworth & Banaji, 2022a). This database can also explore changes in related attitudes and other biases affecting perception, judgment, and behavior from a change perspective (Charlesworth & Banaji, 2019, 2021, 2022b).

The second approach compares data collected by researchers at discrete time points, similar to longitudinal designs but without continuous timing or identical samples. We also classify this as a cross-sequential design. For example, Lopez-Zafra and Garcia-Retamero (2021) compared data they collected in 2006 (participants' likelihood ratings of typical men or women possessing given gender

characteristics) with similar data from 2016, finding that Spaniards perceived increases in women’s masculine cognitive and physical appearance characteristics and increases in men’s feminine characteristics across all domains. Another related method involves replicating a previous study’s data collection procedures in contemporary society and comparing the new data with the original findings. For instance, van der Pas et al. (2023) replicated Schneider and Bos’s (2014) methods to collect data on political gender stereotypes in the United States during 2020–2021 and compared it with Schneider and Bos’s 2011 data. The results showed that Americans’ stereotypes of female politicians became more positive, attributing characteristics such as intelligence, ambition, and rationality (which were rarely associated with female politicians previously). In contrast, while male politicians were previously rated highly on agency, these positive evaluations have significantly decreased in contemporary America.

**2.1.3 Cross-Temporal Meta-Analysis** Cross-temporal meta-analysis of previously published data represents a specialized meta-analytic approach for studying social change. This method not only estimates the magnitude of psychological effects but also groups effect sizes by time period and tests whether these effects change over time (Twenge et al., 2008). Researchers typically compile variables such as sample sizes, means, medians, or standard deviations from all studies on a topic and analyze their covariation with time to reveal change patterns (Cai et al., 2023; for detailed procedures, see Hou et al., 2015). This approach has been frequently used to investigate gender stereotype change. For example, Twenge and colleagues conducted cross-temporal meta-analyses of gender trait changes from 1975–1994 and 1993–2012, finding that women exhibited a pattern of increasing agency and decreasing communion—meaning women displayed fewer feminine traits and more masculine traits—whereas men showed no significant changes in either gendered trait dimension (Donnelly & Twenge, 2017; Twenge, 1997). As noted earlier, Eagly et al. (2020) recently employed this method and found similar results.

## 2.2 Emerging Research Technologies

Like other social changes, gender stereotype change can also be studied through archival data-based cross-time analysis. With the rapid development of natural language processing (NLP) technologies in recent years, cultural products such as books, magazines, film scripts, and song lyrics have become commonly used archival data sources for analyzing stereotype change. Word embedding, a foundational NLP technique, quantifies semantic representations by using vector features to represent words, enabling measurement of semantic similarity and association strength between target words and attribute words (for details, see Bao et al., 2023; Wu et al., 2023). Compared to traditional methods, word embedding offers advantages including lower research costs, high sample representativeness, analytical objectivity, reproducibility, and flexibility (Bao et al., 2023), making it increasingly popular among gender stereotype researchers

(Andrich et al., 2023; Bhatia & Bhatia, 2021). For example, Garg et al. (2018) used word embedding to analyze gender stereotypes in news media and books from 1900–2000, finding that changes in characteristics associated with women aligned closely with the women’s movement of the 1960s and 1970s, revealing temporal changes in gender stereotypes. Building on this work, a study examining stereotypes of 72 groups in four text corpora (e.g., Google Books) from 1900–2015 found that group stereotypes, including gender groups, exhibited moderate to high change in surface content (i.e., most common stereotypical features associated with groups) but remained relatively stable in latent content (i.e., warmth and competence dimensions). Moreover, the study revealed substantial heterogeneity across groups, with some showing dramatic changes in both surface and latent content while others displayed nearly stable patterns (Charlesworth, Sanjeev, et al., 2023).

### 2.3 Summary of Methods

Overall, although diverse methods currently exist for studying gender stereotype change, both traditional approaches and emerging technologies fundamentally rely on cross-temporal comparisons, carrying both the advantages and disadvantages of such methods. Traditional methods include: (1) The past-present-future rating paradigm, which offers good experimental control and reduces extraneous variables but relies on retrospective memory for past time points, potentially compromising accuracy due to memory biases. (2) Cross-sequential designs, which avoid memory bias problems, especially when using existing databases that facilitate data acquisition and broaden analytical scope. However, when collecting contemporary data, subjective reports may be influenced by social desirability effects. As social norms evolve, participants may deliberately reduce or avoid reporting negative gender stereotypes, decreasing accuracy. Additionally, samples in databases like Project Implicit may not be random (primarily comprising students), meaning this youth-biased sample may not represent general populations well (Charlesworth, Navon, et al., 2023). (3) Cross-temporal meta-analysis, which offers low cost and relatively easy data access but may suffer from limited sample representativeness, and not all gender stereotypes (e.g., stereotypes about artificial intelligence; Craiut & Iancu, 2022) have sufficient longitudinal data for comparison (Cai et al., 2023). Emerging word embedding technology analyzes stereotype change through language texts, offering advantages of analyzing many groups (race, gender, age, class, etc.), long time spans (decades or centuries), and diverse sources (books, newspapers, music, etc.). However, word embedding may be subject to researchers’ biases in text selection and editing (Charlesworth, Sanjeev, et al., 2023) and faces challenges in probing psychological mechanisms underlying semantics and questions about reliability and validity (Bao et al., 2023).

These methodological strengths and weaknesses suggest that future research on gender stereotype change should combine multiple methods to maximize advantages while minimizing limitations. Notably, current research methods

have focused primarily on cross-temporal comparisons, yet social change can also be studied through cross-generational and cross-regional comparisons (Cai et al., 2023). Future research should therefore explore these latter approaches as well.

### 3 Impacts of Gender Stereotype Change

#### 3.1 Positive Impacts

Gender stereotype change yields positive impacts primarily in three domains: family, economy, and society. In the family domain, changing stereotypes increase men's involvement in household affairs, which can enhance women's well-being, improve marital quality, and reduce divorce likelihood (Cox & Paley, 2003; Goldscheider et al., 2014). Furthermore, men's involvement in childcare produces positive outcomes for children, including improved academic performance, enhanced self-esteem, and reduced emotional and behavioral problems (Pleck, 2007). These beneficial effects on children's cognitive and social development persist into adulthood (Croft et al., 2015). Economically, the most obvious impact of stereotype change is encouraging more women to leave domestic roles and join the workforce, driving women's transition from traditional economic dependence to contemporary economic independence and continuously narrowing economic gender gaps. This also increases women's opportunities to enter traditionally male-dominated fields and reduces female unemployment rates (Oláh et al., 2018). Societally, as more women enter occupations traditionally dominated by men, traditionally female-dominated professions (e.g., nursing and healthcare) may face labor shortages—fields becoming increasingly important with population aging. Gender stereotype change can encourage more men to enter these occupations, diversifying and sustaining the labor market and maintaining social stability (Croft et al., 2015).

#### 3.2 Negative Impacts

Alongside these positive effects, gender stereotype change also carries negative consequences. Although it can increase women's employment rates and economic independence, it is also associated with rising rates of women living alone and delayed marriage and childbearing (Cunningham et al., 2005), which may exacerbate low fertility rates. Moreover, as more women work outside the home and more men assume domestic responsibilities, work-family conflicts may intensify. These role transitions may pressure individuals to meet societal expectations for their new roles, negatively impacting physical and mental health (Priyashantha et al., 2023b). Recently, Priyashantha et al. (2023a) conducted a systematic review of research on gender stereotype change impacts from 1970–2020, finding that negative consequences primarily affect family and marriage domains. Notably, as social inclusivity, openness, and normativity increase, negative stereotypes about women have declined while positive stereotypes have become more common. However, positive stereotypes do not necessarily produce positive effects and may instead yield negative consequences (Wang & Guan,

2021; Czopp et al., 2015). For example, Proudfoot and Kay (2023) found that even as Americans' stereotypes of women became more positive (e.g., viewing them as generous, patient, and romantic), women did not necessarily perceive these as compliments but instead experienced anger, negatively affecting interpersonal and intergroup relations.

### 3.3 Summary

Current research on the impacts of gender stereotype change remains limited. The consequences discussed here primarily derive from outcomes following role transitions, with little attention to long-term effects of stereotype change over time. Future research should therefore examine gender stereotype change in conjunction with macro-level indicators such as gender representation in leadership positions, divorce rates, and fertility rates to reveal long-term impacts. Additionally, longitudinal studies from a developmental perspective could investigate long-term individual-level effects. Gender stereotype change produces both positive and negative consequences, likely because although stereotypes have shifted toward greater gender equality, they remain rooted in social culture (Charlesworth, Sanjeev, et al., 2023; Haines et al., 2016; van der Pas et al., 2023) and have not achieved full equality, leaving women vulnerable to social injustice. These negative consequences remind us to remain vigilant about gender stereotypes and to intervene to promote change toward equality. Unfortunately, most current interventions have minimal effectiveness in reducing stereotypes and related biases (Forscher et al., 2019; Paluck et al., 2021). As Eagly and Koenig (2021) note, researchers have attempted to cut the weeds above ground (stereotypes) without pulling up the roots, resulting in their regrowth. According to social role theory, as social roles become more diverse, stereotypes will gradually change and approach equality, eventually interrupting the vicious cycle between stereotypes and social roles and reducing or eliminating stereotypes' negative impacts.

## 4 Future Directions

### 4.1 Investigating Gender Stereotype Change Through Multidisciplinary and Multi-Method Integration

Currently, research on cultural and psychological change—not only in gender stereotypes but across the field—is proliferating rapidly. Disciplinarily, the literature spans cultural studies, sociology, and psychology; methodologically, it ranges from standard surveys to tightly controlled experiments to diverse big data approaches, reflecting the diversity of change research. While these studies address the same fundamental questions—whether gender stereotypes have changed, what specific content has changed, and what impacts these changes have—they rarely integrate across disciplines and methods. As previously noted, different disciplines and methods have unique strengths and weaknesses when studying gender stereotype change (Kurdi & Charlesworth, 2023).

Consequently, previous research may have been constrained by these limitations, resulting in a focus on superficial debates about “change vs. stability” rather than deeper investigation of underlying mechanisms and long-term impacts. Future research should therefore purposefully integrate multidisciplinary and multi-method approaches rather than operating in isolation.

#### **4.2 Examining Gender Stereotype Change Through Refined Approaches**

Most previous research has treated gender stereotypes as a homogeneous, unitary construct when examining change, with few studies further refining the concept. Stereotypes can be categorized not only by processing level (explicit vs. implicit) and valence (negative vs. positive) but also by function (descriptive vs. prescriptive). These different types of stereotypes may exhibit distinct change patterns. For example, Zehnter et al. (2018) analyzed over a thousand newspaper obituaries from 1974–2016 to examine gender stereotype change, finding that descriptive stereotypes about “what women are like” changed during this period, while prescriptive stereotypes about “what women should be like” remained relatively stable. This suggests that treating stereotypes as a single unitary construct may inadvertently obscure important information. Therefore, it is necessary to adopt a refined perspective, examining change in different stereotype categories. Beyond refining stereotypes themselves, researchers can also examine gender stereotype change by refining other research perspectives. For instance, the 3D framework of implicit attitude change proposes that implicit attitude change can be analyzed along three axes: analytic level (individual vs. collective), source (experimental, developmental, and cultural), and time frame (short-term vs. long-term) (Kurdi & Charlesworth, 2023). Could gender stereotype change be similarly examined through these three axes? For example, at the analytic level, does gender stereotype change occur more readily at the individual or group level (e.g., organizations, regions, nations)? Regarding sources, does change occur more readily in tightly controlled experimental settings, during longitudinal individual development, or at the macro level of societal events? Regarding time frames, does change occur more readily in the short term or long term? Moreover, what patterns emerge from the more refined categories created by interactions among these three axes? These complex questions warrant future investigation.

#### **4.3 Exploring Gender Stereotype Change Through a Network Perspective**

In addition to refining gender stereotypes, it is necessary to adopt a network perspective to systematically understand stereotype change. In psychology, the network perspective posits that research indicators not only reflect features of underlying constructs but may also interact to form dynamic, complex systems (Robinaugh et al., 2020). Since stereotypes represent connections between social groups and semantic features (Charlesworth et al., 2021), the inherent intercon-

nectedness and interactivity of semantic features mean that researchers should not examine stereotype features in isolation when studying change but should consider relationships between features from a network perspective. For example, the stereotype feature “strong” is currently salient for both men and women, but network analysis reveals that for female stereotypes, “strong” co-occurs with features like “empathetic,” “sensitive,” and “likable,” whereas for male stereotypes, “strong” co-occurs with “aggressive,” “macho,” “insensitive,” and “stubborn” (Sánchez-Rodríguez et al., 2023). Thus, examining “strong” in isolation suggests similar stereotypes for men and women, but a network perspective reveals substantial differences in how “strong” relates to other features. Accordingly, future research on gender stereotype change must attend to relationships between stereotype features, recognizing that even when stereotypes of men and women appear consistent across time periods, this does not necessarily indicate stability. Instead, researchers should use a network perspective to observe whether stereotype features exhibit substantive or subtle differences in their co-occurrence patterns with other features, thereby more accurately capturing the psychological representation of gender stereotypes across different eras.

#### 4.4 Investigating Stereotype Change in China

Social change represents a rare domain in social psychology where China offers greater uniqueness and advantages than the West. The world is currently undergoing unprecedented changes, and China faces an even more profound transformation, experiencing political, economic, and cultural shifts from feudal society through the founding of the People’s Republic to the rapid development following reform and opening up (Cai et al., 2020). This means that compared to Western nations with relatively brief histories, China’s social changes carry deeper historical imprints and cultural characteristics. Therefore, investigating Chinese gender stereotype change within this context is essential. Unlike Western countries, China has transitioned from millennia of feudal beliefs in male superiority, male dominance, and “men manage external affairs, women manage internal affairs” to the basic national policy of “upholding gender equality” and, more recently, to further implementation and enforcement of gender equality and women’s comprehensive development at the 53rd session of the UN Human Rights Council. These changes have transformed Chinese women’s social status and roles, as evidenced by the diversification of women’s employment from singular to multiple domains (e.g., rising numbers of women in knowledge and technical industries, narrowing gender gaps in labor force participation) and improvements in educational attainment from low to high levels (e.g., increasing years of women’s education, narrowing gender gaps in educational attainment) (Zhang & Pan, 2021). Simultaneously, Chinese gender role beliefs have shifted toward modernized gender equality, particularly since 2010 (Wu et al., 2022; Yan & He, 2022). These changes imply that Chinese gender stereotypes may have undergone significant transformation throughout this long historical process.

Moreover, investigating stereotype change in other domains is particularly important in the Chinese context. Regarding age stereotypes, unlike Western countries, China has been deeply influenced by Confucian culture (e.g., the *Classic of Filial Piety* states: “Our bodies, skin, and hair are all received from our parents; we dare not damage them—this is the beginning of filial piety. Establishing oneself and practicing the Way, making a name for posterity to glorify one’s parents—this is the culmination of filial piety”). This seems to presuppose that Chinese age stereotypes may be more positive and stable. However, filial piety in China has changed over time. At the cognitive level, research shows that while people consistently view filial piety as involving respecting parents, treating them kindly, and accompanying them, contemporary individuals do not strongly endorse ancient emphases on “obeying parents” (Ge, 2021). At the behavioral level, the trend of elderly parents co-residing with children has gradually weakened, and children’s support for parents in economic, emotional, and physical care has declined over time (Fu et al., 2016). Additionally, compared to Western countries with slower population aging, rapidly aging Eastern nations such as Japan and China have witnessed more negative attitudes toward aging (North & Fiske, 2015). Therefore, changes in filial piety may influence Chinese age stereotypes, causing them to change.

Regarding ethnic stereotypes, although China does not have racial issues like Western countries, its multiethnic character of 56 ethnic groups makes research on ethnic stereotypes particularly valuable. China’s complex geography and varied terrain have facilitated millennia of large-scale migration of ethnic minorities from peripheries to the Central Plains and Han expansion from the Central Plains to surrounding areas. This process has created a distribution pattern of “large mixed residence, small concentrated settlement,” continuously promoting interethnic contact, exchange, and integration. Interethnic marriage, evolving through historical periods—from a frozen period (Republican era to PRC founding) when most groups strictly prohibited it, to a thawing period (early PRC to reform and opening up) when taboos cracked, to a melting period (reform and opening up to present) when it has become increasingly common—represents concrete evidence of interethnic interaction and may presage changes in ethnic stereotypes (Zhang et al., 2023). As interethnic contact and exchange become increasingly frequent, interethnic marriage will grow more common, and ethnic stereotypes will gradually change. Furthermore, as the consciousness of forging a strong Chinese national community strengthens, people of all ethnic groups increasingly understand, respect, tolerate, appreciate, learn from, and help each other, all of which may cause Chinese ethnic stereotypes to change. The diversity and complexity of 56 ethnic groups mean that research on ethnic stereotype change cannot simply dichotomize Han versus ethnic minorities but must attend to potential uniqueness in stereotype change for each group. Future research should also explore stereotype change regarding sexual orientation, region, social class, and nation in the Chinese context, providing evidence from Chinese culture to the stereotype change field and broader social and cultural change research.

Stereotypes, as cognitive structures rooted in beliefs about social groups, evolve as society changes. Social roles are quietly transforming, with gender role changes particularly salient. During this process, gender stereotypes about men and women are gradually changing over time. However, social role changes are not limited to gender but involve various social categories including race, ethnicity, age, sexual orientation, social class, and religion. How are stereotypes in these domains changing? Since stereotypes may differ across cultures and languages, do patterns of gender stereotype change show cross-cultural consistency and specificity? Might new social groups in some cultures carry new stereotypes that also change? What commonalities and specificities exist in stereotype change across these different groups? After grasping the basic patterns of stereotype change, what underlying mechanisms are involved? What impacts does change have (long-term vs. short-term, macro vs. micro, physiological vs. psychological)? These unanswered questions remind us that stereotypes are not only dynamic structures but also complex psychological phenomena requiring vigorous participation from researchers across relevant fields to address them systematically and advance the study of stereotypes.

*Note: Figure translations are in progress. See original paper for figures.*

*Source: ChinaXiv — Machine translation. Verify with original.*