# What are the Masculine, Feminine, and Non-Binary Prototypes and Dimensions of Young Adults?

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**Abstract**

In recent decades, shifting societal norms and increasing visibility of diverse gender identities have prompted a re-evaluation of how gender is conceptualized. This study explored how masculine, feminine, and non-binary prototypes and dimensions have evolved among young adults by replicating and expanding Helgeson's (1994) prototype-based approach. The research addressed two questions: How the prototypes of masculine male, masculine female, feminine female, and feminine male have changed since Helgeson's (1994) study, and how non-binary prototypes differ from masculine and feminine ones. A total of 98 young adults aged 18-35, sampled through an online questionnaire, described up to five gendered stimulus persons. Responses were analysed using open coding, followed by deductive and inductive categorization into prototypical features and dimensions. Results showed increased emphasis on physical strength and emotional restraint for masculine males, fewer negative traits for masculine female and feminine male prototypes, and the emergence of social expectations and biological processes as dimensions in feminine female descriptions. Non-binary individuals were portrayed as having strong convictions, struggling with gender identity, and expressing uniqueness through appearance. The results indicate evolving gender prototypes and suggest that non-binary individuals are viewed as a distinct category rather than a blend of masculine and feminine traits. Shifting social norms, growing visibility of gender diversity, and increased acceptance of gender non-conformity appear to shape these patterns. Future research should include more diverse and cross-cultural samples, examine the influence of media and education on prototype formation and explore the implications of gender prototype changes for mental health.

*Keywords:* Gender prototypes, masculinity, femininity, non-binary identities, gender norms, gender dimensions, young adults, prototype theory

## What are Masculine, Feminine, and Non-Binary Prototypes and Dimensions of Young Adults?

Gender is a central and pervasive concept that influences nearly every aspect of human life, encompassing psychological, behavioral, social, and cultural dimensions (APA, 2015a). It is understood as the attitudes, emotions, and behaviors that a culture associates with an individual's biological sex assigned at birth (APA, 2012). Gender extends beyond biological classification and is shaped by societal expectations, including norms, stereotypes, and cultural beliefs (Stewart et al., 2021). At the core of these expectations are gender roles, which define socially prescribed behaviors for men and women based on social norms. Traditionally, women are seen as communal (nurturing, empathetic, supportive), while men are characterized as agentic (assertive, competitive, powerful) (Stewart et al., 2021). Gender norms, a subset of social norms which are often informal and unspoken, reinforce these expectations and dictate what is considered acceptable gendered behavior within a group (Cislaghi & Heise, 2019). Importantly, gender norms are not static; they are shaped by cultural, institutional, and social influences and can evolve over time (Cislaghi & Heise, 2019). When individuals challenge traditional gender roles and the norms that uphold them, such as women in leadership roles or men in caregiving roles, they frequently encounter social backlash, discouraging deviation from societal expectations (Stewart et al., 2021).

Beyond socially constructed roles, gender identity reflects an individual's internal sense of being male, female, or another gender. When gender identity does not align with one's biological sex, a person may identify as transgender (APA, 2015b). One specific form of transgender identity is non-binary, which encompasses genders that exist outside or beyond the traditional male-female binary (Hegarty et al., 2018). Non-binary individuals may incorporate elements of both masculinity and femininity or reject these constructs entirely (Hegarty et al., 2018). Reliable statistics on the number of non-binary individuals in the

Netherlands are limited. However, a study conducted in the United States estimated that approximately 1.2 million adults, or around 0.47% of the population, identify as non-binary (Wilson & Meyer, 2021). As societal awareness, visibility, and acceptance of diverse gender identities have grown in recent years, it is likely that the number of people identifying as non-binary will continue to increase (Wilson & Meyer, 2021). Large-scale youth surveys suggest that younger generations are more likely to adopt non-binary identities, reflecting a broader cultural shift in the understanding and expression of gender (Wilson & Meyer, 2021). These societal changes underscore the need to investigate how concepts of gender evolve to include non-binary identities.

To understand how humans cognitively construct gender, this study builds on Rosch's prototype theory (Rosch & Lloyd, 1978). The theory suggests that people categorize concepts by comparing them to a mental prototype, the most representative example of a category. Rather than being defined by rigid rules, categories are structured around prototypes, with certain members considered more typical than others (Rosch & Lloyd, 1978). In the context of gender, individuals categorize others based on their resemblance to socially established prototypes of masculinity and femininity, with certain traits perceived as more representative of a particular gender than others (Helgeson, 1994). Rather than viewing gender as a set of rigid classifications, masculinity and femininity are best understood as fuzzy categories structured around prototypes, where some traits are seen as more central or defining than others (Helgeson, 1994).

Building on prototype theory, Helgeson’s (1994) study applied the prototype approach to examine masculinity and femininity more comprehensively, addressing the limitations of traditional gender role measures. The study aimed to identify the prototypes people associate with masculinity and femininity and to determine whether these features were gender specific. By examining naturally occurring descriptions instead of imposing predefined categories, the

study sought to provide a more accurate and comprehensive understanding of how masculinity and femininity are perceived. To achieve this, participants were asked to describe one of four stimulus persons: a masculine male, a masculine female, a feminine male, or a feminine female. The descriptions were categorized into prototypical features (e.g. caring, well-dressed, likes music) and further classified into three dimensions: personality traits, physical characteristics, and interests or concerns. The study revealed that participants were able to clearly articulate their conceptions of masculinity and femininity, challenging prior claims that these constructs are difficult to define (Helgeson, 1994). Furthermore, Helgeson (1994) found that individuals whose gender expression aligned with traditional roles (e.g., masculine males and feminine females) were attributed more socially desirable prototypical features, whereas those who deviated from these roles (e.g., feminine males and masculine females) were often described in unfavourable prototypical features. For instance, feminine males were commonly labelled as insecure and weak, while masculine females were characterized as aggressive and ugly (Helgeson, 1994). The findings suggest that adhering to gender roles is rewarded, while deviations may provoke negative backlash.

The present study is an adaptive replication of Helgeson's (1994) research, examining whether the prototypes for the masculine male, masculine female, feminine female, and feminine male have shifted over the three decades since the original study, with a specific focus on young adults to ensure representation of a new generation distinct from Helgeson's (1994) participants. Investigating changes in these prototypes is particularly relevant given shifting societal norms (Cislaghi & Heise, 2019), increased gender awareness, and the growing visibility of non-binary identities (Wilson & Meyer, 2021). Since gender is a dynamic and socially influenced phenomenon (APA, 2015a), exploring these prototype developments may offer valuable insights into contemporary gender perceptions. While Helgeson (1994) suggested that gender-nonconforming individuals are often associated with

negative prototypes, the normalization of diverse gender expressions (Wilson & Meyer, 2021) raises the question of whether these negative prototypes persist or have begun to shift.

The present research is an adapted replication study because it introduces a non-binary stimulus person, which was not included in Helgeson's (1994) original study. As societal recognition of non-binary identities expands (Wilson & Meyer, 2021), an important question arises: Are non-binary individuals perceived as a blend of masculine and feminine prototypes, or do they represent a distinct category with unique prototypes? This question is particularly relevant in the context of prototype theory (Rosch & Lloyd, 1978). If non-binary identities do not fit neatly into traditional prototypes of masculinity and femininity, it may signal a shift in how gender is conceptualized. Such a shift could suggest that non-binary individuals are either seen as a mix of existing gender prototypes or as an entirely new prototype, expanding the understanding of gender itself. By addressing these developments, our research is guided by the following research questions:

1. How have the four prototypes (masculine male, masculine female, feminine female, feminine male) changed since Helgeson's (1994) work?
2. How do non-binary prototypes differ from masculine and feminine prototypes?

## Methods

### Participants and Design

This study utilized a qualitative design to explore the masculine, feminine, and non-binary prototypes and dimensions of young adults using a convenience sampling method. To be eligible for inclusion, individuals had to be between 18 and 35 years old and fluent in English, as the survey was conducted in English. Originally, 193 participants took part in the study. Data from 95 participants were excluded due to missing responses on the consent reaffirmation question ($n$ = 88), selecting *other* for age ($n$ = 5), or failing to provide a person description ($n$ = 2). The final sample included 98 participants, the majority of whom were

students (80.6%) and employed (70.4%), working an average of *M* = 12.5 hours per week (*SD* = 9.0). Regarding sex assigned at birth, 34 participants (34.7%) were male and 62 (63.3%) were female. Additional demographic details can be found in Table 1.

**Table 1**

*Demographics of Research Participants*

| Characteristics | N | % |
|---|---|---|
| Age | | |
| 18-20 | 24 | 24.5 |
| 21-25 | 59 | 60.2 |
| 26-30 | 9 | 9.2 |
| 31-35 | 6 | 6.1 |
| Sex at birth | | |
| Male | 34 | 34.7 |
| Female | 62 | 63.3 |
| Other | 2 | 2.0 |
| Gender | | |
| Man | 32 | 32.7 |
| Woman | 60 | 61.2 |
| Non-Binary | 2 | 2.0 |
| Other | 4 | 4.1 |
| Highest level of education | | |
| Primary school | 3 | 3.1 |
| High school | 51 | 52.0 |
| College | 15 | 15.3 |
| University | 28 | 28.6 |
| Other | 1 | 1.0 |
| Studying | | |
| Yes | 79 | 80.6 |
| No | 18 | 18.4 |
| Other | 1 | 1.0 |

Note. This table shows the number of participants per category in both absolute numbers and percentages. Adapted from SPSS.

**Materials**

To address the research questions, each participant could describe one to five stimulus persons of their choice from the following: masculine male, masculine female, feminine female, feminine male, or non-binary. A total of 54 descriptions were provided for masculine males, 25 for masculine females, 39 for feminine females, 20 for feminine males, and 20 for the non-binary stimulus person. Participants were prompted with the instruction: Can you describe this person? Consider how this person looks, what the person thinks about, how the

person behaves, whatever comes to mind and seems relevant. To explore the second research question, the study examines how participants described masculinity, femininity, and non-binarity. Prototypical features of masculine males and masculine females were grouped together to represent masculinity, while prototypical features of feminine females and feminine males were combined to represent femininity. Non-binarity was assessed using the descriptions provided for the non-binary stimulus person.

**Procedure**

For this study, an online questionnaire was administered via the Qualtrics platform. Recruitment was conducted by members of the student researcher group, each of whom invited participants from their social networks, including friends, family, peers, coworkers, and online connections. The questionnaire link, accompanied by an invitation text, was shared through university WhatsApp groups, social media platforms, and private messages. The invitation introduced the research topic, outlined the procedure, and provided an estimated completion time of approximately seven minutes, depending on the number of questions the participant chose to complete. Upon accessing the survey, participants were presented with information about the purpose of the study, details about data security, and the intended use of their responses. They were then asked to provide informed consent for participation before proceeding further. The questionnaire consisted of three sections.

The first section asked the participants to answer open and closed questions about demographics regarding age, education level and nationality. In the second section, participants were asked to choose one of the following five stimulus persons to describe: masculine male, masculine female, feminine female, feminine male, and non-binary. After answering one of the questions, participants were given the option to describe another stimulus person. If they responded *yes*, they could select another stimulus person from the options. This process continued until participants indicated they no longer wished to provide

further descriptions or had described all five stimulus persons. In the third section, the participants were asked about their sex at birth, their current gender identity, and whether their high school paid attention to sexual orientation and gender diversity. Finally, participants were asked to reaffirm their consent for the use of their data. After completing the questionnaire, participants could follow a link to enter their email address for a chance to win a €25 gift card.

### *Ethics*

The study was approved by the Ethical Committee of the Faculty of Behavioral and Social Sciences at the University of Groningen (EC-BSS) before data collection, under research number PSY-2425-S-0084. Participants were informed that they could contact the supervisor, the Ethics Committee, or the University of Groningen Data Protection Officer with any questions; their contact details were provided. Participation was voluntary and anonymous. Participants were fully informed about the study's purpose prior to its commencement. Informed consent was obtained at the beginning regarding data usage, processing, and participation, and consent regarding data usage was reaffirmed at the end of the study. The collected data were treated confidentially and will be stored for ten years.

## Data Analysis

For the data analysis, the participants' descriptions were evenly distributed among the six student researchers, with each researcher coding an equal number. Additionally, each student researcher reviewed another student researcher's coding to ensure accuracy and consistency. During the initial coding phase, open coding was conducted. Student researchers assigned codes to all descriptions deemed relevant to the research questions, categorizing them under *open codes.* Additionally, the first coder could provide notes under *remarks by coder*. The comments made by the first coder were discussed in pairs or as a group to determine the most suitable coding.

In the second coding phase, the open codes were organized into dimensions and prototypical features. Initially, the codes were categorized using a deductive approach, based on the predefined dimensions established by Helgeson (1994): appearance, personality, and interests, along with their respective prototypical features (e.g. long hair, caring, likes sports). These classifications were compiled into a shared codebook. For codes that did not fit within these existing classifications, an inductive approach was applied to identify new dimensions and prototypical features.

To address the first research question, we created tables that contrast the ranks of prototypical features from the present study with Helgeson's (1994) approximately top 20 prototypical features, allowing for a direct comparison. We aimed to include the top 20 most-mentioned prototypical features for each stimulus person, ranked with the most frequently mentioned features at the top. When ties at the 20th rank resulted in significantly more than 20 prototypical features (e.g., 32), we excluded all tied features at that rank. However, if ties extended only slightly beyond the 20th rank (e.g., up to 25), we included them, resulting in variable table lengths. Deductive prototypical features were highlighted in uppercase letters for improved clarity and visualization.

To address the second research question, we created a table comparing the rankings of prototypical features for masculinity, femininity, and the non-binary stimulus person to directly compare them with one another. To create the masculinity column, we combined the counts of prototypical features mentioned for both masculine male and masculine female stimulus persons. Prototypical features mentioned more frequently were ranked higher. The same process was applied to create the femininity column, using feminine female and feminine male prototypical features. For the non-binary column, we took the top-ranked prototypical features for the non-binary stimulus person. In alignment with the approach used for the first research question, if there were ties at the 20th rank that significantly increased

the number of prototypical features (e.g., from 20 to 32), we excluded all tied features at that rank. However, if the ties slightly exceeded the 20th rank (e.g., up to 25), we included them, resulting in some variation in table length. The resulting table allows us to visually compare the prototypical features of masculinity, femininity, and non-binarity side by side.

## Results

### How Have the Four Prototypes Changed since Helgeson's (1994) Work?

The results for the masculine male identified 13 deductive prototypical features, consistent with Helgeson's (1994) findings, along with 11 inductive prototypical features unique to the present study, as shown in Table 2. The nine most frequently mentioned prototypical features in Helgeson's (1994) study, including muscular, likes sports, tall, self-confident, dark, arrogant, dates women, fitness, and caring, largely remained among the top ten in this study. The results, however, show several differences. Within the dimension of appearance, participants in the present study expanded on the prototypical feature muscular, adding strong, big, and strong body features. Additionally, while Helgeson's (1994) study identified the masculine male with the prototypical feature being well-dressed, the present study found the prototypical feature dresses casually. In the dimension of personality, Helgeson's (1994) study identified emotionally strong as a prototypical feature, whereas the present study identified not emotional and does not talk about feelings as prototypical features.

**Table 2**

*Masculine Male Prototypical Features*

| | Helgeson's study | Present study |
|---|---|---|
| 1. | MUSCULAR (A) | MUSCULAR (A) |
| 2. | LIKES SPORTS (I) | SELF-CONFIDENT (P) |
| 3. | TALL (A) | HAIRY FACE (A) |
| 4. | SELF-CONFIDENT (P) | TALL (A) |
| 5. | DARK (A) | dresses casually (A) |
| 6. | ARROGANT (P) | responsible (P) |
| 7. | DATES WOMAN (I) | strong (A) |
| 8. | FITNESS (I) | LIKES SPORTS (I) |
| 9. | CARING (P) | DATES WOMAN (I) |
| 10. | attractive (A) | FITNESS (I) |
| 11. | STRONG CONVICTIONS (P) | not emotional (P) |
| 12. | concern with work (I) | CARING (P) |
| 13. | intelligent (P) | does not talk about feelings (P) |
| 14. | DOMINANT (P) | ARROGANT (P) |
| 15. | emotionally strong (P) | STRONG CONVICTIONS (P) |
| 16. | HAIRY FACE (A) | DOMINANT (P) |
| 17. | CARS (I) | SHORT HAIR (A) |
| 18. | honest/fair (P) | big (A) |
| 19. | intense/persistent (P) | DARK (A) |
| 20. | good manners (P) | CARS/MOTORCYCLES (I) |
| 21. | rugged (A) | strong body features (A) |
| 22. | well-dressed (A) | focuses on growth (P) |
| 23. | | fun/crazy (P) |
| 24. | | resilient (P) |
| 25. | | experiences social expectations and challenges (S) |

*Note. P: personality, A: appearance, I: interests, S: social expectations and challenges, deductive prototypical features are presented in capital letters.*

The results for the masculine female identified seven deductive prototypical features, including likes sports, muscular, short hair, dresses casually, self-confident, aggressive, and male friends and eight inductive prototypical features, as shown in Table 3. There were several differences between the studies. Compared to Helgeson's (1994) study, the present study identified fewer negative prototypical features. For example, Helgeson's (1994) study results showed that the masculine female was associated with prototypical features such as drinks alcohol, ugly, not caring, and fat, none of which appear in the current study. Additionally, the present study identified fewer appearance-related prototypical features for

the masculine female, with five compared to ten in Helgeson's (1994) study. In the personality dimension, Helgeson's (1994) study listed not caring as a prototypical feature, whereas the present study includes caring, which ranks as the fourth most mentioned feature.

**Table 3**

*Masculine Female Prototypical Features*

| | Helgeson's study | Present study |
|---|---|---|
| 1. | LIKES SPORTS (I) | SHORT HAIR (A) |
| 2. | MUSCULAR (A) | DRESSES CASUALLY (A) |
| 3. | SHORT HAIR (A) | avoidance of femininity (P) |
| 4. | DRESSES CASUALLY (A) | caring (P) |
| 5. | deep voice (A) | strong convictions (P) |
| 6. | SELF-CONFIDENT (P) | MUSCULAR (A) |
| 7. | AGGRESSIVE (P) | SELF-CONFIDENT (P) |
| 8. | no make-up (A) | active (I) |
| 9. | big (A) | tough (P) |
| 10. | fitness (I) | ponytail (A) |
| 11. | homosexual (P) | AGGRESSIVE (P) |
| 12. | dominant (P) | LIKES SPORTS (I) |
| 13. | tall (A) | male dominant occupation (I) |
| 14. | concerned with work (I) | MEN FRIENDS (I) |
| 15. | cars (I) | differentiated accessories (A) |
| 16. | drinks alcohol (I) | |
| 17. | MEN FRIENDS (I) | |
| 18. | ugly (A) | |
| 19. | hairy face (A) | |
| 20. | not caring (P) | |
| 21. | fat (A) | |

*Note. P: personality, A: appearance, I: interest, deductive prototypical features are presented in capital letters.*

The results for the stimulus person feminine female, show ten deductive prototypical features, including caring, wears a dress, long hair, well-dressed, concerned with appearance, social, make-up well done, friendly, and traditional, along with ten inductive prototypical features as shown in Table 4. Regarding differences, the present study introduced two new dimensions: social expectations and challenges, and biology. Descriptions related to facing social expectations and biological processes were especially frequently mentioned for the feminine female stimulus person. Examples of descriptions for the prototypical feature faces

social expectations include job is to look nice and pretty, has to take care of partner, has to take care of kids, and has gender roles assigned to her. Within the biology dimension, the prototypical feature XX chromosome encompasses descriptions such as: is on her period, born as a female, is menopausal, and is pregnant.

**Table 4**

*Feminine Female Prototypical Features*

| | Helgeson's study | Present study |
|---|---|---|
| 1. | CARING (P) | MAKE-UP WELL DONE (A) |
| 2. | good manners (P) | LONG HAIR (A) |
| 3. | WEARS A DRESS (A) | CONCERNED W/ APPEARANCE (I) |
| 4. | LONG HAIR (A) | CARING (P) |
| 5. | WELL DRESSED (A) | WEARS A DRESS (A) |
| 6. | self-confident (P) | emotional (P) |
| 7. | CONCERNED W/ APPEARANCE (I) | WELL DRESSED (A) |
| 8. | attractive (A) | accessories/jewellery (A) |
| 9. | soft spoken (P) | faces social expectations (S) |
| 10. | family oriented (I) | kind (P) |
| 11. | likes music (I) | SOCIAL (P) |
| 12. | SOCIAL (P) | well-groomed (A) |
| 13. | MAKE-UP WELL DONE (A) | gentle (P) |
| 14. | delicate (P) | graceful (P) |
| 15. | small (A) | soft features (A) |
| 16. | shy (P) | TRADITIONAL (P) |
| 17. | likes art (I) | FRIENDLY (P) |
| 18. | books (I) | wears traditionally feminine colours (A) |
| 19. | FRIENDLY (P) | winter clothes (A) |
| 20. | intelligent (P) | XX chromosomes (B) |
| 21. | TRADITIONAL (P) | |
| 22. | smiles (A) | |
| 23. | manicured nails (A) | |

*Note. P: personality, A: appearance, I: interests, S: social expectations and challenges, B: biology, deductive prototypical features are presented in capital letters.*

The results for the stimulus person feminine male show seven deductive prototypical features, including emotional, caring, well-dressed, concerned with appearance, high-pitched voice, social, and sensitive, along with ten inductive prototypical features, as shown in Table 5. There are several differences between Helgeson's (1994) study and the present study. Regarding the appearance dimension, prototypical features such as wears make-up, small, wears traditionally feminine clothes, and nails done were frequently mentioned but were

absent in Helgeson's (1994) findings. In the personality dimension, the prototypical feature homosexual, which was the most frequently mentioned feature in Helgeson's (1994) study, was mentioned so infrequently in the present study that it did not appear on the final list. There was also a reduction in negative prototypical features. In Helgeson's (1994) study, negative features such as insecure and weak were commonly associated with the feminine male. However, in the present study, insecure was not mentioned at all, and the description weak appeared only twice, which was not frequent enough to be included in the final list. Instead, the present study found caring, social, and emotional to be among the most frequently mentioned prototypical features in the personality dimension.

**Table 5**

*Feminine Male Prototypical Features*

| | Helgeson's study | Present study |
|---|---|---|
| 1. | homosexual (P) | CONCERN W/ APPEARANCE (I) |
| 2. | thin (A) | CARING (P) |
| 3. | insecure (P) | SOCIAL (P) |
| 4. | EMOTIONAL (P) | wears make-up (A) |
| 5. | likes art (I) | small (A) |
| 6. | CARING (P) | EMOTIONAL (P) |
| 7. | woman friends (I) | kind (P) |
| 8. | WELL DRESSED (A) | HIGH-PITCHED VOICE (A) |
| 9. | dislikes sports (I) | wears traditionally feminine clothes (A) |
| 10. | interest in fashion (I) | short hair (A) |
| 11. | gesticulates (A) | nails done (A) |
| 12. | CONCERN W/ APPEARANCE (I) | expressive (P) |
| 13. | HIGH-PITCHED VOICE (A) | WELL DRESSED (A) |
| 14. | SOCIAL (P) | SENSITIVE (P) |
| 15. | shy (P) | progressive/ left-wing (I) |
| 16. | delicate (P) | dresses uniquely (A) |
| 17. | weak (P) | well groomed (A) |
| 18. | SENSITIVE (P) | empathetic (P) |
| 19. | creative (P) | |
| 20. | talkative (P) | |
| 21. | soft-spoken (P) | |

*Note. P: personality, A: appearance, I: interests, deductive prototypical features are presented in capital letters.*

**How do Non-Binary Prototypes Differ from Masculine and Feminine Prototypes?**

The results for the most frequently mentioned prototypical features for femininity, masculinity, and the non-binary stimulus person highlight distinct prototypical features within the personality dimension. The prototypical features are detailed in Table 5. For non-binary individuals, these prototypical features include strong convictions, with descriptions such as being outspoken about LGBTQ rights, rejecting societal gender roles, and resisting being confined to traditional categories. Additionally, the prototypical feature struggles with gender identity is high on the list, with descriptions such as feeling disconnected from male or female classifications and not identifying with any gender. Other personality dimension related non-binary prototypical features include liking attention, being empathetic, shy, and insecure. These traits contrast with the caring, social, and emotional prototypical features associated with femininity, as well as self-confidence, caring, avoidance of emotions, and responsible prototypical features linked to masculinity. In the appearance dimension, non-binary prototypical features include gender-neutral looks, unique dressing, colourful hair, funky jewellery, tattoos, short hair, rainbows, and gender-neutral clothing. Jewellery is a shared prototypical feature between non-binarity and femininity, though the non-binary stimulus person specifically has the prototypical feature funky jewellery.

**Table 5**

*Femininity and Masculinity vs. Non-Binarity Prototypical Features*

| | Femininity | Masculinity | Non-Binarity |
|---|---|---|---|
| 1. | make-up well done (A) | muscular (A) | STRONG CONVICTIONS (P) |
| 2. | concerned w/ appearance (A) | self-confident (P) | struggling with gender identity (P) |
| 3. | caring (P) | DRESSES CASUALLY (A) | gender neutral looks (A) |
| 4. | social (P) | SHORT HAIR (A) | dresses uniquely (A) |
| 5. | emotional (P) | caring (P) | colourful hair (A) |
| 6. | long hair (A) | hairy face (A) | funky jewellery (A) |
| 7. | kind (P) | tall (A) | likes attention (P) |
| 8. | wears a dress (A) | STRONG CONVICTIONS (P) | no different than others (ND) |
| 9. | well-dressed (A) | likes sports (I) | DRESSES CASUALLY (A) |
| 10. | well-groomed (A) | responsible (P) | empathetic (P) |
| 11. | small (A) | strong (A) | SHORT HAIR (A) |
| 12. | accessories/ jewellery (A) | dates woman (I) | tattoos (A) |
| 13. | faces social expectations (S) | dominant (p) | gender neutral clothing (A) |
| 14. | gentle (P) | fitness (I) | no concern w/ appearance (I) |
| 15. | graceful (P) | not emotional (P) | rainbows (A) |
| 16. | soft features (A) | does not talk about feelings (P) | wears make-up (A) |
| 17. | traditional (P) | dark (A) | shy (P) |
| 18. | friendly (P) | strong body features (A) | insecure (P) |
| 19. | nails done (A) | cars/motorcycles (I) | |
| 20. | wears traditionally feminine colours (A) | avoidance of femininity (P) | |
| 21. | wears winter clothes (A) | big (A) | |
| 22. | XX chromosomes (B) | | |

*Note. P: personality, A: appearance, I: interests, S: social expectations and challenges, B: biology, ND: no different than others, deductive prototypical features are presented in capital letters.*

## Discussion

This study aimed to explore the evolving masculine, feminine, and non-binary prototypes and dimensions of young adults. Specifically, it aimed to examine two research questions: (1) How have the four prototypes changed since Helgeson's (1994) work? and (2) How do non-binary prototypes differ from masculine and feminine prototypes? To summarize the results, regarding the first research question, for the masculine male, most frequently

mentioned prototypical features from Helgeson's (1994) study remained the same (e.g. muscular, confident, hairy face, tall). New prototypical features included dresses casually, strong, not emotional, does not talk about feelings, big, and strong body features. For the masculine female, many prototypical features remained the same (e.g. short hair, dresses casually, muscular, confident). However, there were several differences between the studies. Negative prototypical features such as drinks alcohol, ugly, not caring, and fat were present in Helgeson's (1994) study but not in the present study. Fewer appearance-related prototypical features were identified in the present study, with five compared to ten in Helgeson's (1994) study. Caring appeared as an often-mentioned prototypical feature for the masculine female, while not caring, which was present in Helgeson's (1994) study, did not. For the feminine female, many prototypical features remained the same since Helgeson's (1994) study (e.g. make-up well done, long hair, concerned with appearance, caring). Two new dimensions emerged for the feminine female, including social expectations and challenges, and biology, with new inductive prototypical features such as faces social expectations and XX chromosomes. Some deductive prototypical features were identified for the feminine male (e.g. concerned with appearance, caring, social, emotional, high-pitched voice) and inductive prototypical features such as wears make-up, small, wears traditionally feminine clothes, and nails done. Homosexual, which was the most frequently mentioned prototypical feature for the feminine male in Helgeson's (1994) study, did not appear in the present study. Features such as insecure and weak, which were mentioned frequently in Helgeson's (1994) study, did not make it on the list in our study.

Regarding the second research question, the non-binary prototype differed substantially in prototypical features from masculinity and femininity and included prototypical features with only three deductive (e.g. strong convictions, dresses casually, short hair) and 15 inductive prototypical features. Inductive prototypical features include strong

convictions, struggling with gender identity, liking attention, being empathetic, shy, and insecure in the personality dimension. Appearance-related inductive prototypical features included gender-neutral looks, unique dressing, colourful hair, funky jewellery, tattoos, short hair, rainbows, and gender-neutral clothing. While femininity also had jewellery as a prototypical feature, the emphasis for non-binary was on funky jewellery.

In addressing our first research question about how the four prototypes have changed since Helgeson's (1994) work, we found a mix of continuity and change. For the masculine male, one notable difference from Helgesons (1994) study to our study is a pronounced emphasis on physical strength, with prototypical features like strong, big and strong body features, added to muscular within the appearance dimension. This finding aligns with a study by Pope et al. (1999), which suggests that exposure to exaggerated muscular ideals in media may influence societal standards of male physique. With the increase in media influences since Helgeson's (1994) study, the development may be better understood.

Additionally, the masculine male prototypical features well-dressed identified in Helgesons (1994) study shifted to dresses casually in our study. Research conducted by Zhang (2007) and Barry and Martin (2015) explore how the increasing flexibility of masculinity, media influence, and changing social norms have shifted male fashion. Zhang (2007) highlights how subcultures and fashion leaders drive style changes, while Barry and Martin (2015) emphasize social media and self-expression as key influences. Both studies suggest that as masculinity becomes more fluid, men increasingly embrace casual and diverse styles over rigid formal wear.

For the masculine male, in the personality dimension, Helgeson (1994) identified the prototypical feature emotionally strong, whereas our study found the prototypical features not emotional and does not talk about feelings. While previous research does not explicitly explain this shift, Addis and Cohane (2005) highlight how masculinity norms reinforce

emotional stoicism, risk-taking, and self-reliance, contributing to men's reluctance to seek help and increased mental health risks. There may have been a shift in understanding since Helgeson's (1994) study, where lacking emotional expression is now seen as suppression rather than strength. However, we have not been able to find literature to support this idea.

Regarding the masculine female, the most obvious change from Helgeson's (1994) study is the reduction of negative prototypical features. Helgeson's (1994) participants described the masculine female as drinks alcohol, ugly, not caring, and fat, none of which appeared in the current study's table. In terms of the personality dimension, Helgeson's (1994) study found the prototypical feature not caring, whereas our study found caring as the fourth most mentioned feature. One explanation for the reduction in negative prototypical features for the masculine female may be offered by the contact hypothesis (Dixon & McKeown, 2017). It states that intergroup contact reduces prejudice. In this context, increased familiarity with gender-nonconforming individuals such as the masculine female, the feminine male, and the non-binary stimulus persons may reduce negative stereotypes (Dixon & McKeown, 2017). This could also lead to a shift in prototypes. Supporting this, Duncan et al. (2019) found that 80.6% of respondents personally knew someone who exhibited gender nonconformity, suggesting shifting attitudes, particularly among younger generations, toward greater acceptance and less rigid gender roles. Furthermore, Moya and Moya-Garofano (2021) found that by 2018, women were more associated with traditionally masculine traits than in 1985, reflecting increased acceptance of women in male-dominated roles, and thus normalizing masculine traits in females. These findings suggest that increased social exposure to gender-nonconforming individuals may contribute to the diminishing of negative masculine female prototypes over time.

For the feminine female stimulus person, we found two new dimensions: social expectations and challenges, and biology. This may indicate a broader recognition of societal

roles and biological experiences as defining aspects of the feminine female. Examples of descriptions linked to the prototypical feature faces social expectations include being expected to look nice and pretty, taking care of a partner, caring for children, and having gender roles assigned to her. The emergence of this new dimension in our study may be explained by evolving social expectations for women. As Cislaghi and Heise (2019) describe, feminist movements have broadened the concept of femininity beyond appearance to include traits like emotional expressiveness and nurturing. While this shift allows for more diverse expressions, it also increases societal scrutiny, with women expected to balance traditional roles alongside growing demands for independence, career success, and empowerment (Cislaghi & Heise, 2019). Additionally, gender norms remain deeply embedded in institutions and social interactions, reinforcing these pressures (Cislaghi & Heise, 2019). This is also supported by West and Fenstermaker (1995), who argue that institutional and societal norms continuously reproduce gender expectations, perpetuating challenges for women and maintaining systemic inequalities, which may explain why social expectations and challenges have become a defining dimension of the feminine female in our study.

In the new biology dimension for the feminine female, the prototypical feature XX chromosome is described with phrases such as: being on her period, being born as a female, going through menopause, and being pregnant. To explain the frequent mention of biological processes in descriptions of the feminine female, we draw on Vamos et al. (2012), who note that women's health education has expanded to cover biological, social, and psychological aspects, raising awareness of menstruation, menopause, and pregnancy. Advances in public health and medical research have reduced stigma, fostering open discussions. Modern education promotes critical literacy, encouraging engagement with scientific literature and media, while social and political shifts have replaced past restrictive approaches (Vamos et al., 2012). The increased emphasis on comprehensive health education, the destigmatization

of female biology, and greater societal openness around gendered experiences may account for the identification of female biological processes as prototypical for the feminine female in our study.

Regarding the feminine male stimulus person, the appearance dimension has gained prominence since Helgeson's (1994) study, with frequent mentions of traditionally feminine aesthetics. Prototypical features identified in our study, such as wears make-up, small, wears traditionally feminine clothes, and nails done, were absent from Helgeson's (1994) findings. The more frequent mention of traditionally feminine looks may be linked to the rise of male beauty practices, as discussed by Berkowitz (2023), who notes the increasing participation of men in beauty practices and the industry's shift toward marketing traditionally feminine self-care to men. Similarly, LeBlanc (2023) discusses how drag culture serves as a platform for exploring and embodying femininity, allowing performers to navigate and challenge traditional gender norms. The study highlights how drag queening blurs the lines between masculinity and femininity, reinforcing the role of aesthetic presentation in gender expression, particularly through its visibility in mainstream media (LeBlanc, 2023). The growing normalization of male beauty routines, the mainstream visibility of drag culture, and the shifting boundaries of gender expression through appearance may explain why participants in our study emphasized appearance-related femininity more than in Helgeson's (1994) study.

For the feminine male stimulus person, negative prototypical features decreased, similar to the masculine female. Traits like insecure and weak, common in Helgeson's (1994) study, were absent in ours, and homosexual, previously the most mentioned prototypical feature, did not appear in the present study. To explain this shift, we refer to Anderson's (2011) study, which introduces the concept of homohysteria. This concept describes the historical pressure for men to adopt hypermasculine behaviors to avoid being perceived as homosexual. The AIDS epidemic in the 1980s amplified this fear. Anderson (2011) argues

that modern masculinity increasingly separates gender expression from sexual orientation, allowing men to exhibit femininity (e.g., wearing make-up, manicured nails) without being assumed to be gay, which may explain why the prototypical feature homosexual no longer appears as a defining trait for feminine male in our study.

Considering our second research question, which asks how non-binary prototypes differ from masculine and feminine prototypes, non-binarity shows strong convictions as its most prototypical feature. To explain why non-binary individuals are described as having strong convictions, we draw on Darwin's (2017) study, which explains that non-binary individuals frequently assert and defend their identity due to societal misunderstanding and erasure. This necessity may lead them to develop strong beliefs about gender, equality, and self-expression. Darwin (2017) also describes struggling with gender identity as a core part of the non-binary experience, meaning most non-binary individuals undergo a period of internal struggle before embracing their identity, which may explain its frequent mention in our study. Regarding the non-binary prototypical feature liking attention, Darwin (2017) suggests that non-binary identities are often overlooked or invalidated, prompting some individuals to express themselves in ways that demand recognition (e.g., colourful hair, unique clothing). This need for visibility and validation might be interpreted as liking attention. In sum, the non-binary prototypical features identified in our study, including strong convictions, struggling with gender identity, and liking attention, can be understood as reflections of the social pressure to assert one's identity, the internal process of navigating gender, and the need for visibility in a society that often overlooks non-binary individuals (Darwin, 2017).

On the appearance dimension, the non-binary stimulus person prototypical features emphasize uniqueness and individuality through unconventional and creative self-presentation, with prototypical features including dresses uniquely, colourful hair, funky jewellery, tattoos, and rainbows. While jewellery is also a prototypical feature for femininity,

the emphasis for non-binarity is on funky jewellery, further highlighting individuality. Darwin (2017) explains that non-binary individuals struggle to be recognized as such since people often default to binary gender assumptions. One could reason that individuality, expressed through funky jewellery, unique clothing, and colourful hair, acts as a visual marker that signals gender identity and increases recognition. Darwin (2017) highlights that non-binary individuals actively resist binary gender norms, rejecting strict categorization as masculine or feminine, which may explain additional prototypical features found in our study, such as gender-neutral looks and clothing. To avoid categorization, they develop unique self-presentation styles, often incorporating androgynous, mixed-gender, and individuality-focused fashion (Darwin, 2017). The non-binary stimulus person forms a distinct prototype, separate from masculinity and femininity, blending individuality, gender ambiguity, and a rejection of traditional gender norms, making it a unique category.

Although the present study provided important insights into masculine, feminine, and non-binary prototypes and dimensions of young adults, it also has significant limitations. First, our sample is highly educated, mostly Western, and includes more women than men. This is a limitation because sociodemographic factors such as education, cultural background, and gender influence beliefs, behaviors, and developmental processes (Bornstein et al., 2013). As Bornstein et al. (2013) emphasize, samples that lack diversity in sociodemographic composition may yield findings that are not generalizable and can introduce bias or noise into the results. Therefore, the demographic skew in our sample limits the extent to which our findings can be applied to other populations. For example, a study by Qian et al. (2023) shows that cultural differences affect the development of gender stereotypes among children in Canada, China, and Thailand. The findings suggest that children from all three cultures exhibit implicit gender-toy stereotypes, but the strength and developmental trajectory of these stereotypes vary by culture. This highlights that individuals from diverse cultural backgrounds

may develop different gender stereotypes, emphasizing the importance of varied demographics in research to fully understand gender perceptions (Qian et al., 2023).

Another limitation of this study is the presence of multiple biases that shaped the participant responses. Multiple participants acknowledged in their replies that they were describing stereotypes, which may lead to answers reflecting traditional, stereotypical views rather than purely personal beliefs in the form of prototypes. Additionally, the open-answer format and coding process introduced bias, as a single individual could contribute multiple comments into one prototypical feature, leading to an overrepresentation of their perspective. As an example, the prototypical feature winter clothes for the feminine female was created solely based on the responses of one participant, who listed various types of winter clothing as typical for the feminine female stimulus person. Although we recognized this as a potential issue during the study's planning phase, we chose to maintain a methodology closely aligned with Helgeson's (1994) study, given that our study is a replication.

A further important limitation of this study is the uneven distribution of responses across the stimulus persons. For instance, the masculine male was described in 277 selective codes, whereas the non-binary stimulus person received only 93. This imbalance, caused by allowing participants to choose whom they described, resulted in more detailed and nuanced data for some stimulus persons than for others. For the masculine male and feminine female, we were able to create a top 20 rank of prototypical features, although not for the masculine female, feminine male, and non-binary stimulus persons. As a result, comparisons across prototypes, such as masculinity and non-binary identity, are less reliable, and underrepresented stimulus persons may not accurately reflect broader understandings of prototypes. Although we discussed this potential issue during the study design phase, there was disagreement about whether it should be changed - by assigning stimulus persons to the

participants. Ultimately, we chose not to do that, to align our methodology as closely as possible with Helgeson's (1994) original study.

Despite these limitations, the present study also has several notable strengths. First, it achieved a relatively high response rate ($N$ = 98), especially considering the recruitment strategy, which relied on each researcher sharing the questionnaire link within their networks. This approach enabled us to collect a substantial amount of data, resulting in 158 usable responses. This led us to have had enough responses for the masculine male and feminine female. Another important strength of this study is the collaborative nature of the research process. Conducting the analysis as a group enhanced the reliability of the findings, since multiple researchers were involved in coding and interpretation, which helped minimize individual bias (O'Connor & Joffe, 2020). Intercoder reliability encourages reflection and open discussion among team members. Differences in coding are not merely obstacles but offer valuable insights that contribute to refining coding structures and clarifying meaning. The involvement of several researchers in the analytic process supports greater transparency, consistency, and clarity, thereby strengthening the credibility of the overall research (O'Connor & Joffe, 2020).

Furthermore, the qualitative approach provided several advantages. The use of open-ended questions allowed participants the freedom to describe the stimulus persons in their own words rather than being guided in a specific direction. Helgeson's (1994) study already emphasized the benefits of this research design as enabling a more nuanced and organic understanding of how people perceive masculinity, femininity (and in our study non-binary) identities. Finally, the study emphasized inclusivity by explicitly incorporating non-binary stimulus persons, ensuring that gender diversity was acknowledged and analysed rather than reinforcing a strict binary perspective. This makes the research more reflective of

contemporary understandings of gender diversity and the importance of including nonbinary identities in scientific inquiry (Wilson & Meyer, 2021).

Building on the experiences and the methodological insights we gained from conducting this study, we suggest the following recommendations for future researchers. Future research should aim to improve sample diversity in terms of education level and participant gender to enhance the generalizability of findings and avoid the overrepresentation of any group. As Bornstein et al. (2013) emphasize, sociodemographic characteristics such as gender, ethnicity, and socioeconomic status influence beliefs, behaviors, and developmental processes. Failing to account for this diversity can compromise the validity and generalizability of findings. To address this, researchers are encouraged to use more rigorous sampling strategies, such as stratified or quota sampling, to ensure that subgroups are adequately represented. Oversampling underrepresented groups and applying appropriate sample weights can help correct imbalances and reduce bias, allowing for more accurate estimates of both overall population characteristics and subgroup differences (Bornstein et al., 2013). The study by Qian et al. (2023) exemplifies this, as it demonstrated that children's implicit gender-toy stereotypes varied not only in strength but also in developmental patterns across Canada, China, and Thailand. These cultural differences would likely have been obscured in a less diverse sample, emphasizing the importance of intentionally including and analysing distinct subgroups to capture the full complexity of gender stereotype development (Qian et al., 2023).

To mitigate biases in responses, researchers could explore alternative methods, such as implicit measures or mixed-method approaches (Forscher et al., 2019), to capture more spontaneous and less stereotype-driven perceptions. For instance, researchers could collect survey data (quantitative) on gender traits and complement this with in-depth interviews or open-ended responses (qualitative) (Forscher et al., 2019). Additionally, ensuring a more even

response rate across stimulus persons is crucial to obtain a balanced number of descriptions for the stimulus persons. This can be achieved by assigning a specific stimulus person to the participants.

Lastly, in our study, some participants contributed multiple, repetitive descriptions that contributed to the same prototypical feature. To address this issue in future research, it may be helpful to limit the number of descriptions allowed per stimulus person. For example, setting a maximum of ten ideas to be written down per stimulus person could encourage participants to reflect more carefully and avoid repeating the same idea multiple times, such as listing various forms of winter clothing for the feminine female. When participants are aware of such a limit, they may be more likely to avoid redundancy and contribute more diverse and meaningful input.

This study provides insights into evolving gender prototypes with possible practical implications for media, education, and mental health. The stronger emphasis on physical strength in masculine male prototypes found in our study compared to Helgeson's (1994) study aligns with the emergence of new media-driven ideals (Pope et al., 1999). This finding suggests a pressing need for more diverse representations of male bodies to challenge and reduce the impact of unrealistic appearance standards. Furthermore, masculine males' prototypical features transitioned from emotionally strong to not emotional and does not talk about feelings highlighting the need to challenge restrictive masculinity norms and encourage emotional openness among men (Addis & Cohane, 2005). This may be achieved through mental health initiatives, educational programs (O'Reilly et al., 2018), and media representations (Tam et al., 2024), that promote emotional expression as a strength rather than a weakness, thereby supporting healthier emotional well-being among men.

The reduction of negative prototypical features for masculine female and feminine male in the present study aligns with the contact hypothesis (Dixon & McKeown, 2017),

suggesting that increased exposure to gender diversity in the past decade may have fostered greater acceptance. This proposes that educational and media efforts should continue to normalize diverse gender expressions by enhancing visibility (Bracco et al., 2024). In the present study, the recognition of social expectations and challenges as a new dimension for the feminine female may highlight either increasing societal pressures on women or the growing recognition of these pressures, reflecting the influence of feminist movements in making these issues more visible (Cislaghi & Heise, 2019). To take further steps in the right direction, greater education on feminism may be needed to raise awareness of gender inequality and women's rights (Jaysawal & Saha, 2023). This can be achieved through educational interventions, for example in schools (O'Reilly et al., 2018). The growing recognition of female biology for the feminine female, including menstruation, menopause, and pregnancy (Vamos et al., 2012), is a positive step, but can be further integrated into education to ensure informed discussions, reduce stigma, and enhance gender-inclusive education. For example, schools could expand their resources on these topics (O'Reilly et al., 2018). Non-binary prototypical features such as strong convictions and dresses uniquely may reflect identity assertion in a binary-dominated society (Darwin, 2017), highlighting the need for inclusive policies like gender-neutral restrooms and pronoun recognition (Fletcher & Swierczynski, 2023). These measures create safer environments, reducing misgendering and social exclusion (Fletcher & Swierczynski, 2023).

To conclude, this study sheds light on how gender prototypes have evolved among young adults since Helgeson's (1994) foundational work, revealing both continuity and meaningful change. The intensified emphasis on physical strength in the masculine male prototype may reflect growing media influence (Pope et al., 1999), while the reduction of negative features in masculine female and feminine male prototypes suggests increasing acceptance of gender-nonconforming individuals (Dixon & McKeown, 2017; Duncan et al.,

2019). The emergence of the new dimensions social expectation and challenges, and biology in the feminine female prototype may reflect growing awareness of the societal and biological complexities linked to females (Cislaghi & Heise, 2019; West & Fenstermaker, 1995; Vamos et al., 2012). The non-binary prototype emerged as distinct from the prototypes for masculinity and femininity, characterized by individuality and resistance to binary norms. These findings point to the need for more inclusive gender representations in education and media (O'Reilly et al., 2018; Tam et al., 2024). Future research should explore gender prototypes in more diverse samples (Bornstein et al., 2013) and examine how shifting gender prototypes affect mental health. The present study contributes to a more nuanced and contemporary understanding of gender, and points toward concrete directions for societal change and further psychological research.

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# Appendix A

## Declaration of AI-Use

I declare the use of AI, specifically ChatGPT, for the following purposes:

1. AI aided with recommendation for sentence phrasing, grammar corrections, and improved English wording.
    - Example prompt: “I dislike the phrasing of the beginning of this sentence: This study is important, because…, please give me several alternative ideas on how to start this sentence in a smoother way.
    - Example prompt: “please tell me if this sentence has good wording and grammar and if not, please suggest how I can improve this sentence by showing me what I did wrong: These stimuli were designed to evoke characteristics of masculinity and femininity that were not explicitly tied to a specific gender.”