Submitted: 03 April, 2023 Accepted: 20 July, 2023 Published: 30 October, 2023 DOI:10.22514/jomh.2023.100

ORIGINAL RESEARCH

JOMH Journal of Men's Health

Profiles of conformity to gender role norms and depression among adult Korean men

Joon-Yong Yang[1,*]

[1]Institute of Health and Environment, Seoul National University, 08826 Seoul, Republic of Korea

***Correspondence**
lainfox@snu.ac.kr
(Joon-Yong Yang)

Abstract

Socioeconomic polarization have consequences for men seeking a traditional male image; consequently, the pattern of conformity to gender role norms is changing. Taking into account an actor-oriented perspective, this study hypothesized that adherence to gender role norms would vary among male groups and would be associated with differences in mental health, specifically in terms of depressive symptoms. For verification, a Gender Roles and Health Survey was conducted with 897 Korean men aged 19–69 years between January and February 2022 to assess male gender roles, traditional gender role attitudes, and descriptive masculine norms, and to measure participants' level of depressive symptoms using the 8-item Center for Epidemiological Studies Depression scale. Four latent profiles—"high conformity", "medium conformity", "non-conformity to gender stereotypes" and "non-conformity to male gender roles"—were identified. The non-conformity to male gender roles profile, which entails accepting traditional gender stereotypes, was associated with a significantly higher depression score. This profile also exhibited the characteristics of lower age, lower household income and being unmarried or not living with a partner. The non-conformity to gender stereotypes profile showed the lowest depression score. Based on the study findings, individuals who deviate from gender role norms, particularly in terms of self-ascribed masculinity, are more likely to experience depression. This suggests that the relationship between adherence to gender role norms and men's mental health is complex and varied.

Keywords

Gender norm conformity; Korean men; Depression; Anomie

1. Introduction

Since the mid-2010s, there has been increasing concern in the public health field regarding men's health, particularly their mental health [1–3]. Over the past three decades, the impact of masculinity has become a prominent subject in gender and mental health research [4]. While there are various understandings and definitions of masculinity, Connell [5], who proposed the concept of hegemonic masculinity, defined masculinity as "the configuration of gender practice which results in male dominance, manifested in patterns of social relations, and the power relations between women and men" (p. 77). She argued that individuals who are excluded and considered incapable of embodying the normative and idealized form of masculinity are particularly vulnerable to poor health outcomes.

Poor health is often perceived as incompatible with masculinity. However, on the other hand, masculinity is deeply intertwined with undesirable health outcomes. Precarious manhood theory, a major theory explaining the gender paradox of men having higher mortality rates compared to women, has been widely adopted in Western research on men's health [6, 7]. A concise summary of this theory can be found in Courtnay's explanation [8], which suggests that institutionalized social structures encourage men to engage in health-defeating practices. As a result, men are more likely to engage in risky alcohol consumption, smoking, drug use, healthcare avoidance, unhealthy eating habits, risky sexual behaviors, reckless driving and more [6–9].

As pointed out by Robertson [10] and de Visser and McDonnell [11], the relationship between masculinity and health is not one-sided. Instead of health being inherently masculine for men, there is a stronger association between exhibiting socially performative health behaviors and masculinity. This occasionally presents itself as a paradoxical phenomenon, where unhealthy men engage in behaviors that further compromise their health in an attempt to restore masculinity, while men who have established a highly masculine reputation enjoy greater access to healthcare services. According to these arguments, men navigate between the realms of health and unhealthy behaviors in their pursuit of finding the optimal point within hegemonic masculinity.

According to Wong and Wang [12], in their comprehensive

review of psychological research on masculinity, masculinity is measured and analyzed across five domains. These domains include self-ascribed masculinity, other-ascribed masculinity, situational masculinity, performative masculinity and macro masculinity. Self-ascribed masculinity refers to an individual's perceived characteristics of themselves, such as their own manliness and the experience of being a man. Other-ascribed masculinity involves socially accepted claims about masculinity, such as masculinity ideologies. Situational masculinity focuses on psychological changes based on situational context, while performative masculinity examines social behavior. Lastly, macro masculinity encompasses overall social structures and ideological apparatuses.

The dysfunction strain paradigm and gender norm conformity theory are prominent theories that illuminate the negative consequences of adhering to traditional masculine norms, especially the psychological mechanisms underlying masculinity's impact on men's health [13]. The dysfunction strain paradigm suggests that men strive to meet societal expectations of their gender roles, but often fall short, resulting in a state of strain. Even if they succeed, they may become excessively immersed in their gender roles, leading to emotional difficulties [14]. On the other hand, gender norm conformity theory describes how men regulate their behaviors, thoughts and emotions to align with various independent masculine norms [15]. However, individuals retain autonomy in choosing whether to embrace these norms, which implies that the intensity and methods of conformity may vary [15]. The Conformity to Masculine Norms Inventory was developed using items that reflect conformity to affective, behavioral and cognitive aspects of dominant masculine norms in the United States [15, 16]. While the dysfunction strain paradigm and gender norm conformity theory may not provide a comprehensive explanation for masculinity's influence on gender relations, they are considered relevant and appropriate within their respective domains of study. Moreover, gender norm conformity theory emphasizes the significance of considering specific societal contexts instead of adopting a universal perspective on the mechanisms linking gender norms to mental health. It particularly posits that individual coping mechanisms for stress may differ depending on the level of conformity to each norm, ultimately shaping mental health outcomes.

Empirical studies on the relationship between gender norms and mental health have reported positive, negative and mixed results. Traditionally, the perspective that masculinity and its pursuit are linked to instability and anxiety among men has been prevalent in Western societies [6], as reflected in the studies of Wong *et al*. [17] and Hoy [18]. These studies demonstrated that male norms could cause mental health deterioration among men considered not sufficiently masculine, resulting in feelings of stress, guilt and embarrassment. However, several studies focus on positive aspects of masculinity [19–21], and some claim that various male norms do not always consistently correlate with mental health [13, 22, 23]. Studies on depression among Korean males using variables similar to gender norms have reported a mixed pattern, wherein male gender roles reduce depression, and traditional gender role attitudes increase depressive symptoms [24, 25]. Studies on the positive association between masculinity and mental health showed that men who conform to the norms of being strong and competitive tend to have better mental health, as they are more likely to adopt stress-coping strategies focusing on active problem-solving, including exercise [21, 26].

While previous studies have provided valuable insights into the mechanisms of masculine norms, their primary focus has been on examining the relationships between variables rather than on the actors themselves. This tendency is especially evident in the gendered approach to gender roles, where psychological attributes are often emphasized, potentially overshadowing the actual dynamics of gender relations [27]. In addressing this limitation, Kim *et al*. [28] and McDermott *et al*. [29] proposed strategies to reposition men as active participants in research, drawing on the research framework developed by Wong *et al*. [17]. To interpret the effects of different norms on men's health, various perspectives can be adopted, including variable-oriented, actor-oriented and outcome-oriented approaches. The variable-oriented perspective recognizes the independent nature of multiple masculine norms and acknowledges that individuals may conform to certain norms while deviating from others. This approach involves conducting regression analyses to explore the respective relationships between various norms and health outcomes simultaneously. Iwamoto *et al*. [13] and Milner *et al*. [30] provided exemplary studies in this regard. On the other hand, the actor-oriented perspective recognizes that patterns of norm conformity can vary among individuals based on the social characteristics of the groups they belong to. This approach offers the advantage of examining the relationship between the social context of male groups and masculinity norms in a more nuanced manner. Finally, the outcome-oriented perspective suggests that while masculine norms may be associated with specific health outcomes and behaviors, they may not be directly related to other health factors. Kim *et al*. [28] and McDermott *et al*. [29], among others, have advocated for embracing the actor-oriented perspective and conducting group-centered analyses to overcome the limitations of previous research. They also recommended utilizing specific analytical methods such as latent profile analysis (LPA). The present study employed an actor-oriented perspective and utilized statistical techniques to profile gender norm conformity variables, thereby highlighting "the actor" as the focal point of men's health research.

Several studies have conducted LPA to classify the types of conformity to masculine norms. Ma *et al*. [31] conducted an LPA that included masculine norms, attitudes toward traditional gender roles, anxiety regarding loss of masculinity, acceptance of feminine roles, and sexism to classify types of masculinity among Korean men and examine quality of life associated with each type. The results revealed that the types of masculinity were classified as traditional, transitional and non-traditional, with traditional masculinity having the lowest self-rated health and the highest suicidal ideation, primarily from having a high level of anxiety related to the risk of losing masculinity. In a study by Kilian *et al*. [32], 250 men who received treatment for depression were classified into three types of masculinity based on masculine norms and work role orientation. The study showed that men with higher adherence to traditional masculine norms had higher

depression scores. Similarly, McDermott *et al*. [29] classified depressive symptoms in American male workers through LPA and examined their relationship to conformity to masculine norms. The study found that male depression was classified into four types and that high conformity to masculine norms was associated with the internalization and externalization of depressive symptoms.

It is challenging to fully comprehend masculinity using quantifiable tools. Specific concerns regarding statistical studies on masculinity assessing gender norms include one-dimensional interpretations instead of the variation in conformity to gender norms representative of masculinity [33–36]. This is because differences exist between conformity to norms, acting according to norms, and what society accepts as normative behavior. However, examining the conformity patterns to gender role norms may provide an understanding of certain latent behavioral and perceptual characteristics that men follow in society. Social norms, including gender role norms, may homogenize people, while those who do not conform to such norms are recognized collectively as a non-conforming group [15, 37, 38]. However, despite the limitation of homogenizing social conformity, a broad scope for exploratory purposes is a benefit of examining conformity in relation to men's health outcomes. Furthermore, masculinity encompasses patterns that involve social, psychological and biological influences, making it challenging to integrate the perspectives into a biopsychosocial model for research investigation [39]. Examining the influence of gender separately, from a psychosocial or biological perspective, may lead to the misconception that social norms are more important than biological mechanisms or *vice versa*. However, using a typology method allows for examining the norms in a way that can elucidate the conformity patterns in a population.

This study aimed to investigate the relationship between gender norms and mental health, specifically depression, in Korean men from an actor-oriented perspective. Additionally, the study employed the LPA technique to classify different masculinities. The gender norms examined in this study are gender role norms, which are beliefs about how men and women should act in specific ways [15]. There is a presupposition that during the analysis process, ideas concerning an essentialist or structuralist research strategy may emerge. This can be related to a bias in terms of societal and researchers' expectations of what a man should be [5, 33, 40] and should be avoided. However, considering the social transformations that have taken place in Korean society, particularly the neoliberal economic reforms, in the past two decades, it is possible to identify a subgroup of males who demonstrate non-conformity to gender role norms and experience a sense of anomie. This study focused explicitly on Korean men partly due to the recent rapid deterioration of men's mental health in Korea and also considering the phenomenon of grouping observed in Korean society based on certain types of masculine attitudes. Specifically, this study focused on depression, considering that depression is highly prevalent and can result in suicide, and both are considered a cultural phenomenon that is accepted by Koreans as a characteristic of Korean society beyond being a biological or psychological disorder [41].

Since the neoliberal economic reforms, suicide rates among Korean men have steadily increased for more than 10 years, with 18.1 deaths per 100,000 population in 1997 (the period of the financial bailout), followed by a sharp increase to 26.7 deaths per 100,000 population in the subsequent year, and reaching a peak of 43.3 deaths per 100,000 population in 2011 [42]. Since then, the mental health of Korean men has shown stability. However, during the coronavirus disease 2019 (COVID-19) pandemic, a declining pattern emerged, especially among young adult males. For example, during the first half of 2021, 20,210 male patients aged 25–29 years received treatment for depression, representing an increase of 104.4% relative to 9887 patients in the first half of 2017 [43]. Additionally, a survey by the Korean Ministry of Health and Welfare showed that suicidal ideation among men aged 30–39 years increased by 11%, from 14.0% in March 2020 to 25.0% in March 2021 [44].

In a society where only the wealthy can afford to start a family, recent studies examining the masculinity of Korean men have observed the emergence of a marginalized group that rejects traditional male gender roles while expressing superiority over women [31, 45–47]. This generation has relinquished the misguided notion that adhering to traditional gender roles will grant them dominance over women. However, their disregard for social structures hinders their recognition of the enduring influence of male hegemony, which perpetuates gender-based prejudices. Consequently, a paradoxical social phenomenon has emerged in Korea, characterized by the simultaneous rejection of male gender roles and the persistence of misogyny. This group primarily includes young men distanced from socioeconomic hegemony, resulting in polarization. They assert that older generations of men and young women systematically deprive them of their legitimate rights and interests within the Korean social structure. Struggling with a high level of resentment and anger, they reject the role of older male generations and express hatred toward women but also hold the conflicting desire to be accepted as active subjects of sexual and material consumption by them [31, 45].

Their assertion is gaining supporters through internet communities, and their characteristics are being established as a reflection of a state of wandering, having lost traditional male norms [45, 46]. This phenomenon, characterized by men experiencing anomie and exhibiting similar health behaviors that contribute to poor mental health, can be conceptualized using the terms "diseases of despair" or "deaths of despair", which have received significant academic attention since 2017 [3]. The descent of traditional male roles indicates that men no longer assert their masculine status as other generations did and can fall into despair, resulting in health problems such as drug abuse, alcohol abuse and suicide [1, 2]. Moreover, the worsening economic distress caused by the COVID-19 pandemic may further exacerbate the "diseases of despair" among men [48, 49].

2. Materials and methods

2.1 Participants and procedures

An online survey was conducted by Macromill Embrain (www.embrain.com), a comprehensive survey research

agency specializing in online and mobile surveys, which included 1331 Korean adults aged 19–69 years (434 women and 897 men). The questionnaire survey was titled "Gender Roles and Health Survey" and comprised 150 items in seven sub-domains related to men's health. The primary survey was conducted 26–28 January 2022 and an additional survey was conducted 8–10 February 2022, which coincided with the outbreak of the COVID-19 omicron variant in South Korea. The participants were recruited using the online panel from the research company, and the samples were selected by stratified random sampling considering the age and residence area. The target sample size was calculated considering the prevalence of depression among Korean men (7.5% in 2015). A total of 897 male cases were included in the final analysis. The descriptive statistics on the participants are presented in the Results section.

2.2 Measures

2.2.1 Depression

Depression was selected as the variable for identifying the mental health status among men. Its symptoms were measured using the Korean version of the short form of the Center for Epidemiologic Studies Depression (CES-D) scale, originally developed in 1977 as a 20-item scale [50]. Subsequently, the eight-item short form of the CES-D (CES-D 8) was developed to lessen the respondents' burden [51], and its validity and usefulness have been confirmed in previous studies [52, 53].

The CES-D 8 includes the following items regarding emotions felt during the past week from the time of responding to the survey: (1) "I felt depressed", (2) "I felt lonely", (3) "I felt sad", (4) "I was happy" (reversed), (5) "I enjoyed life" (reversed), (6) "Everything I did felt like an effort to me", (7) "I had restless sleep" and (8) "I could not get 'going"'. Each item is rated on a 4-point scale: 0 ("rarely or never") to 3 points ("most or all of the time"). The respondent's depression score is the sum of the scores for all eight items. Higher scores indicate the more frequent the individual has experienced depressive symptoms in the past week. The depression scores exhibited a mean of 8.12 with a standard deviation of 4.42. The data displayed a skewness value of 0.732 and a kurtosis value of 0.414. Cronbach's α was 0.840.

2.2.2 Gender role norms

The measurement of masculine norms involves self-ascribed masculinity and other-ascribed masculinity. Wong and Wang [12] proposed the Conformity to Masculine Norms Inventory (CMNI) [15] as a representative tool for measuring self-ascribed masculinity, and the Male Role Norms Inventory (MRNI) [54] as an exemplary questionnaire for measuring other-ascribed masculinity. Initially consisting of 94 items, the CMNI primarily focused on Western dominant masculinity; however, subsequent developments resulted in abbreviated scales with reduced item numbers (*e.g.*, 55, 46, 30, 29, 22 and 11) [55]. Mahalik *et al.* [15] identified 11 major domains of masculine norms, which include winning, emotional control, primacy of work, risk-taking, violence, heterosexual self-presentation, playboy, self-reliance, power over women, dominance and pursuit of status. Levant *et al.* [55], who created a shortened version of the CMNI, conducted confirmatory factor analysis and confirmed the presence of 10 norms, excluding dominance. In their study, Worthington and Whittaker [56] utilized 46 items and excluded the norm of primacy of work. Woo [16] aimed to develop a Korean version of the CMNI for Korean participants and proposed five factors: initiative, responsibility toward family, dominance, self-reliance and emotional control. Conversely, the MRNI initially provided a comprehensive measurement of masculine norms but underwent revision to specifically focus on confirming traditional gender role norms that contribute to masculinity ideologies [54]. The Revised MRNI measures masculinity role norms using seven items: avoidance of femininity, fear and hatred of homosexuals, extreme self-reliance, aggression, dominance, non-relational sexuality and restrictive emotionality.

In this study, conformity to gender role norms was measured by differentiating the norms into three major categories and selecting the appropriate tool for each category. For self-ascribed masculinity, the Korean Male Gender Role Scale developed in 2002 was utilized [57]. While a more recent tool by Woo [16], which adopted the questionnaire by Mahalik *et al.* [15], was available, it was not considered because the validity of this tool had not been sufficiently tested, and there are almost no studies where the tool has been used. The Korean Male Gender Role Scale comprises five factors: achievement orientation, friendship with male friends, task orientation, initiative and responsibility toward family. Subsequent gender norm-related scales developed for Koreans also classify men's gender norms using almost identical methods, with only different names [16, 58]. This tool has six to seven items per factor; however, some items have low factor loading values of <0.50. To reduce the respondents' burden, three items with the highest internal fit were selected from each factor to comprise a condensed scale.

The items in each factor were rated on a 5-point scale (1 = "strongly disagree" to 5 = "strongly agree"). The items included the following: achievement orientation ("I have to be more successful than others", "Getting ahead is important for me" and "I should be at a level where I can feel superior to others"); friendship with male friends ("I can do anything for my friends", "My friendship with my male friends is more important than anything" and "Anything of my friend's, I must help as if my own"); task orientation ("I should not be afraid of new endeavors or challenges", "I must not lose my cool under any circumstance" and "I must be responsible for my words"); initiative ("I must be responsible for my words", "I take responsibility for whatever is given to me till the end" and "I will not be timid"); responsibility toward family ("I have to keep the job I hate for my family", "I must do anything for my family, no matter how hard" and "Someone who has a family cannot quit his job easily"). Among orthogonal rotation methods, varimax rotation was used to perform principal axis factoring analysis. Sample adequacy measures and Bartlett's sphericity test results were all favorable, and the measure of sampling adequacy value was 0.731. The internal consistency reliability of the five factors based on Cronbach's α was 0.852, 0.831, 0.713, 0.747 and 0.884 for achievement orientation, friendship with male friends, task orientation, initiative and

responsibility to family, respectively.

The dimension of social pressure, represented by other-ascribed masculinity, was measured by following Cialdini and Trost's [59] distinction of social norms into injunctive norms and descriptive norms. To measure injunctive male role norms, traditional gender role attitudes were examined. The selection of traditional gender role attitudes instead of alternative norm measurement tools was based on the judgment that existing measurement tools for Korean men's gender role norms fail to sufficiently capture perceptions of dominance and discrimination towards women [60]. Given that male gender roles are shaped in relation to female gender roles, it is essential to identify relational aspects when considering gender role norms [61]. Although traditional gender role attitude scales have been criticized for their inclination towards gender dichotomy, this study assumed that the scale would clearly demonstrate male respondents' perception of women. Therefore, an 11-item measure was used to assess traditional gender role attitudes, which was originally developed by Vermeersch *et al.* [62], tested for validity and reliability by Halimi *et al.* [60], and subsequently translated into Korean. The items include the following: (1) "I find it disturbing if a boy behaves like a girl", (2) "It is in everyone's best interest if the man makes the decisions within the family", (3) "There is definitely something wrong with a boy practicing ballet as a hobby", (4) "I find it disturbing if a girl behaves like a boy", (5) "There is definitely something wrong with girls who use foul language", (6) "It is in everyone's best interest if a woman stays at home and does not go to work once they have children", (7) "Only slim girls are attractive to boys", (8) "If I heard a woman was a mason or a roofer, I would doubt whether she was 'feminine"', (9) "A man should avoid being dependent on others", (10) "A man without self-confidence is an idiot" and (11) "A real man does not give in; he fights back". Each item was rated on a 5-point scale, where 1 = "strongly disagree" and 5 = "strongly agree". An exploratory factor analysis, conducted in the same manner as the one used for the male gender role questions, revealed that the 11 items could be clustered into a single factor. Cronbach's α value was 0.842. The sampling adequacy measure and Bartlett's test of sphericity were both good, with measure of the sample adequacy (MSA) values above 0.860. All items had an eigenvalue of 1 or more, meeting the Kaiser criteria. The mean value of the 11 items was operationalized as traditional gender role attitudes.

Few tools or empirical studies have been developed for descriptive male gender role norms. Hence, the following items were developed for use in the present study: "Men around me behave like men", "People around me show disdain for men who behave femininely" and "All men around me look masculine". These three items were rated on a 5-point scale, where 1 = "strongly disagree" and 5 = "strongly agree". Higher scores indicate the perception that traditional masculinity is prevalent. Cronbach's α was 0.700.

The above seven variables were used to assess conformity to gender role norms. The mean scores could range from 1–5 and were as follows: achievement orientation, mean (M) = 3.34, standard deviation (SD) = 0.86; friendship with male friends, M = 3.13, SD = 0.76; task orientation, M = 3.76, SD = 0.67; initiative, M = 3.83, SD = 0.68; responsibility toward family, M = 3.86, SD = 0.89; traditional gender role attitudes, M = 2.72, SD = 0.71; and descriptive male gender role norms, M = 3.20, SD = 0.74.

To assess the validity of the seven variables representing gender role norms, a confirmatory factor analysis was conducted. Three analytical models were developed for this purpose. Firstly, a model considering all 29 questionnaire items related to gender norms as a single factor was constructed. Subsequently, an analysis model was created, separating the gender norms variables into seven factors, in accordance with the design of this study. Lastly, a two-level model was formulated, wherein the seven factors were collapsed into two categories: self-ascribed masculinity encompassing male gender role questions, and other-ascribed masculinity including traditional gender role attitudes and descriptive masculine norms. The fit indices for the single-factor model exhibited generally poor performance (Chi-square minimum divided by degrees of freedom (CMIN/DF) = 20.509, comparative fit index (CFI) = 0.353, goodness of fit index (GFI) = 0.526, increment fit index (IFI) = 0.354, adjusted goodness of fit index (AGFI) = 0.453, Tucker-Lewis index (TLI) = 0.303, root mean square error of approximation (RMSEA) = 0.148). When comparing the fit of the seven-factor model (CMIN/DF = 3.860, CFI = 0.930, GFI = 0.916, IFI = 0.930, AGFI = 0.891, TLI = 0.916, RMSEA = 0.056) with that of the two-level model (CMIN/DF = 5.108, CFI = 0.867, GFI = 0.848, IFI = 0.867, AGFI = 0.821, TLI = 0.853, RMSEA = 0.068), the former demonstrated a superior fit. The seven-factor model demonstrated satisfactory values for the main goodness-of-fit criteria, except for the chi-square index, which was influenced by the number of cases. Consequently, the seven-factor model was selected as the preferred model for this study.

2.2.3 Sociodemographic variables

Age, household income, education level, and marital status were chosen as sociodemographic variables that were expected to be associated with gender role norms and the level of depression. Household income was the pre-tax gross income of the participant's household, which was divided into seven tiers from 0 to $\geq$7.01 million (M) won. In 2021, the value of 1 million won approximately equated to $750. For an individual residing alone in South Korea, the average real living cost was reported to be 2.2 million won, with a median value of 2 million [63]. Furthermore, the data indicated that the average monthly income for an individual worker amounted to approximately 3.1 million won, while a four-person household earned an average monthly income of 6.6 million won. Correspondingly, the real cost of living for a household of four was estimated at 5.9 million won. Education level was divided into four categories: high school or below, college, university, and graduate school. Marital status was divided into married or living with a partner, and others.

2.3 Data analysis

Three analytical methods were used in this study. First, LPA, wherein continuous variables measured using a ratio scale are used as latent variables, was performed to identify the gender role norm profiles. Although LPA is similar to cluster

analysis, it is considered more advanced because it allows the calculation of the probability that each case belongs to a specific latent profile and statistical testing of the number of latent profiles. As there were no missing values in the survey data, the maximum likelihood method was used under the generalized structural equation algorithm without any additional assumptions. This study followed recent studies that used the LPA technique to examine the conformity to gender role norms variables [29, 31, 32].

To examine potential significant differences in depression scores between estimated latent profiles, one-way analysis of variance (ANOVA) and one-way analysis of covariance (ANCOVA) were performed. Moreover, ANCOVA helped investigate potential significant differences in depression scores between latent profiles when sociodemographic variables were controlled for. Before each analysis, a violation of the assumption of equal variance between latent profiles was examined, and a *post-hoc* test was performed. All analyses were performed using the StataBE 17 program (V17.0, StataCorp LLC, College Station, TX, USA).

3. Results

3.1 Participants' charateristics

The mean age of the male participants was 44.13 years (SD = 13.67). Regarding average monthly household income, 245 (27.3%), 177 (19.7%), 143 (15.9%), 160 (17.8%) and 172 (19.2%) participants had an income ≤3 M, 3.01 M–4 M, 4.01 M–5 M, 5.01 M–7 M, and ≥7.01 M won, respectively. Regarding education level, 184 (20.5%), 91 (10.1%), 502 (56.0%) and 120 (13.4%) participants had their highest education level as high school, college, university and graduate school, respectively. Meanwhile, 517 (57.6%) participants were married or living with a partner, whereas 380 (42.4%) were single, divorced, widowed or separated.

3.2 Profiles of gender role norms conformity

3.2.1 Correlation analysis of latent variables

Pearson correlation coefficients were computed to examine the relationship among the seven variables constituting the masculine norm conformity profile (Table 1). The results revealed significant positive correlations at the 99% confidence level, except for the association between traditional gender role attitudes and task orientation and initiative. The correlation coefficients for the statistically significant relationships ranged from 0.110 to 0.636. Notably, correlations above 0.50 were observed for task orientation and initiative (r = 0.636) and descriptive male gender role norms and traditional gender role attitudes (r = 0.547).

3.2.2 Number of latent profile models

LPA was performed using seven gender role norms variables. To determine the adequate number of profile models, the size and margin of decreases on typical goodness-of-fit (GOF) indices were examined (Table 2). A model shows a good fit if it has a lower GOF index and a higher margin of decrease. Akaike's information criterion (AIC), Schwarz's Bayesian information criterion (BIC), and sample size-adjusted BIC (saBIC) showed the highest decrease when the number of latent profiles increased from 2 to 3, and the second highest was when the number increased from 3 to 4.

For the classification quality, the entropy value was examined; if the value is approximately or greater than 0.8, over 90% of the samples are considered to have been classified appropriately. This study's models had relatively low entropy values. However, entropy values were solely used for reference, and the analysis continued following Lubke and Muthén [64], who recommended that various criteria, including background theories, should be used for model classification. The entropy value was the highest in the two-profiles model and the second highest in the four-profiles model.

Two profile classifications exhibited good entropy values. However, in general, a smaller number of profiles can yield a higher entropy index, potentially resulting in overlooked differences between potential profiles. To address this concern, the analysis aimed to identify a decrease in AIC and BIC values and the emergence of multiple profiles with similar sizes. Based on these considerations, the optimal number of profiles for the analysis was determined to be four.

The mean values of the seven variables inputted into the latent profile models were standardized by z-scores and are shown graphically for each profile (Fig. 1). Profile #1, with 157 samples, accounting for 17.50% of all samples, showed a relatively high z-score of ≥0.5 for all variables. This profile was named a "high conformity profile" because it represented a group with a positive perception of all male gender role norms.

Profile #2, with the highest number of samples (420), accounted for 46.82% of all samples. In profile #2, all variables had a z-score ranging between −0.5 and 0.5, and no variable showed a low mean value. This profile was named the "medium conformity profile" as it showed an average level of conformity to the norms.

Profile #3 had 177 samples, accounting for 19.73% of all samples. This profile showed similar values as the mean in the five male gender roles but showed lower values in the traditional gender role attitudes and descriptive male gender role norms. Due to the strong association of these two variables with the differentiation of gender roles between males and females, Profile #3 was named "non-conformity to gender stereotypes profile."

Finally, Profile #4 had 143 samples, accounting for 15.94% of all samples. Contrary to Profile #3, Profile #4 showed values close to the mean for traditional gender role attitudes and descriptive male gender role norms, but had the lowest scores among all profiles for the five male gender roles. This profile was named "non-conformity to male gender roles profile" because it represented no opposition to the segregation of male and female roles but refusing to conform to male gender roles.

An examination of the differences in latent variable levels across the four constructed profiles was conducted (Table 3). *Post-hoc* tests revealed a stair-stepped pattern of differences in latent variable values across all profiles, except for two items: achievement orientation and friendship with male friends. These findings suggest that the distinction between latent profiles exhibits a strong level of validity of the LPA model.

TABLE 1. CES-D 8 item scores and total scores for depression across latent profiles (N = 897).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1)	1.000						
(2)	0.547**	1.000					
(3)	0.158**	0.159**	1.000				
(4)	0.177**	0.110**	0.200**	1.000			
(5)	0.178**	−0.008	0.254**	0.294**	1.000		
(6)	0.188**	0.058	0.154**	0.327**	0.636**	1.000	
(7)	0.175**	0.127**	0.127**	0.224**	0.292**	0.377**	1.000

*(1) descriptive male gender role norms; (2) traditional gender role attitudes; (3) achievement orientation; (4) friendship with male friends; (5) task orientation; (6) initiative; (7) responsibility toward family. **p < 0.01.*

TABLE 2. Model fit statistics of latent profile models (N = 897).

Number of Profiles	AIC	BIC	saBIC	Entropy	Proportion (%) (highest/lowest)
2	14020.16	14125.74	14055.87	0.721	62.88/37.12
3	13783.90	13927.87	13832.60	0.664	64.66/16.72
4	13597.71	13780.08	13659.40	0.709	46.82/15.94
5	13514.83	13735.59	13589.50	0.593	45.60/11.59
6	13448.12	13707.27	13535.77	0.432	43.14/2.34

AIC, Akaike's information criterion; BIC, Bayesian information criterion; saBIC, sample-sized-adjusted Bayesian information criterion.

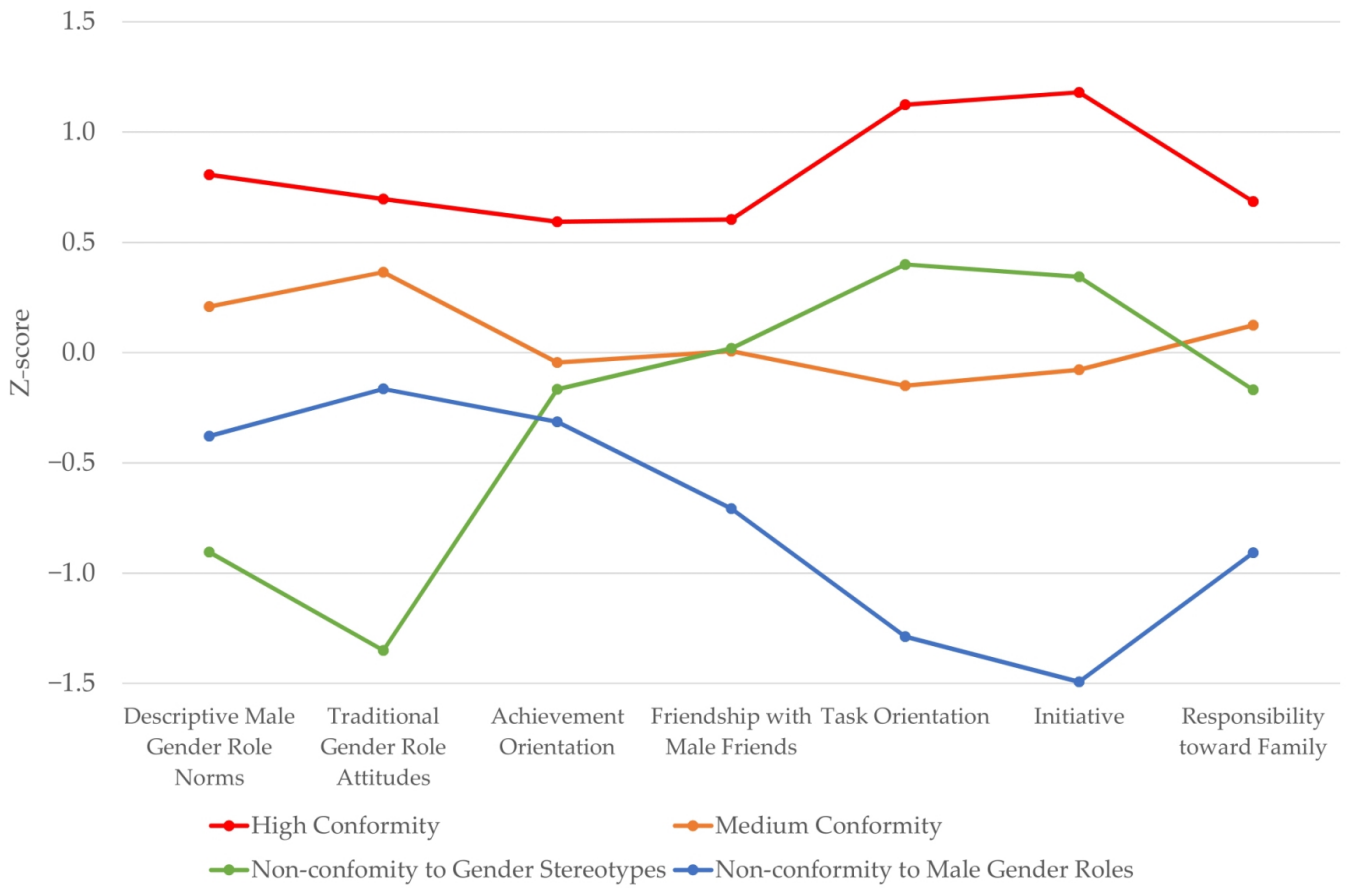

FIGURE 1. Four conformity to gender roles profiles according to seven variables used to assess conformity to gender role norms. The latent profile models were standardized by *z*-scores.

TABLE 3. Values of latent variables of the identified norm conformity profiles (N = 897).

Latent Variable	Latent Profile (M (SD))				*F* (*p*)	*Post-hoc* test (Games-Howell)
	Profile 1	Profile 2	Profile 3	Profile 4		
(1)	3.80 (0.61)	3.35 (0.51)	2.53 (0.77)	2.92 (0.69)	139.291 (<0.001)	P1 > P2 > P4 > P3
(2)	3.20 (0.65)	2.96 (0.47)	1.79 (0.45)	2.65 (0.56)	265.325 (<0.001)	P1 > P2 >P4 > P3
(3)	3.85 (0.90)	3.30 (0.75)	3.19 (1.01)	3.07 (0.73)	27.235 (<0.001)	P1 > P2, P3, P4; P2 > P4
(4)	3.59 (0.73)	3.14 (0.67)	3.15 (0.77)	2.59 (0.71)	50.071 (<0.001)	P1 > P2, P3 > P4
(5)	4.52 (0.42)	3.66 (0.43)	4.03 (0.51)	2.90 (0.54)	333.143 (<0.001)	P1 > P3 > P2 > P4
(6)	4.63 (0.34)	3.78 (0.38)	4.07 (0.49)	2.83 (0.47)	498.311 (<0.001)	P1 > P3 > P2 > P4
(7)	4.46 (0.71)	3.97 (0.67)	3.71 (1.01)	3.05 (0.85)	87.129 (<0.001)	P1 > P2 > P3 > P4

Profile 1: High conformity; Profile 2: Medium conformity; Profile 3: Non-conformity to gender stereotypes; Profile 4: Non-conformity to male gender roles. (1) descriptive male gender role norms; (2) traditional gender role attitudes; (3) achievement orientation; (4) friendship with male friends; (5) task orientation; (6) initiative; (7) responsibility toward family.

3.2.3 Sociodemographic characteristics

The sociodemographic characteristics of the four profiles were examined (Table 4). Age tended to be older in Profiles 1 (M_1 = 46.80) and 2 (M_2 = 47.47) with relatively high conformity to norms, whereas Profiles 3 (M_3 = 37.24) and 4 (M_4 = 39.90) had a higher percentage of younger participants aged 19–39 years. Specifically, profile #3 had a higher percentage of those aged 20–29 years (36.72%).

Although household income was initially measured by seven items, it was subsequently condensed to five items for better data presentation. Household income was distinctly lower in Profile #4 (M_4 = 3.05), which had the highest and lowest percentage of those with household income ≤3 M won (39.86%) and ≥7.01 M won (10.49%), respectively. The other three profiles showed little differences in household income (M_1 = 3.83, M_2 = 3.78, M_3 = 3.85).

Regarding education level, Profiles 3 (M_3 = 2.55) and 4 (M_4 = 2.46) had a high percentage of those who were high school graduates; specifically, Profile #4 only had 5.59% of samples with a graduate degree or higher (M_1 = 2.73, M_2 = 2.67). Regarding marital status, the percentage of married or living with a partner appeared in the highest-to-lowest order of Profiles 2, 1, 3 and 4. However, it is important to exercise caution when interpreting the results, as there is a significant correlation between education level, marital status, age and household income.

3.3 Gender role norms and depression

3.3.1 CES-D items and total scores

The level of depression in the four profiles was examined (Table 5). Regarding the mean score for each item of the CES-D 8, Profile #4 showed higher scores for all items than the other three profiles, followed by Profile #2, except for item #8. The total depression score appeared in the highest-to-lowest order of Profiles 4, 2, 1 and 3. A one-way ANOVA revealed statistically significant differences in depression scores between the four latent profiles. The assumption of equal variance was met for all questions and a *post-hoc* test was performed using Scheffe's method. The results showed that Profile 4 had higher depression scores than the other profiles. For each CES-D question, the difference between Profile 4 and Profile 2 was relatively small.

3.3.2 ANCOVA results

ANCOVA was performed to test whether the conformity to gender roles profiles were associated with depression when the sociodemographic variables were controlled for (Table 6). The adjusted R^2 value was 0.075. The results showed a significant positive relationship between the profiles and depression when controlling for the sociodemographic variables (F = 10.125, p < 0.001), and the partial-η^2 value was 0.033. In addition to the profiles, household income and marital status were related to depression with a 99.5% confidence interval.

According to the *post-hoc* test, which employed the SIDAK technique, Profile #4 had the highest depression score when all sociodemographic variables were controlled for (Table 7). The results showed that the depression scores might be higher than that of Profiles 2 and 3, while a statistically significant difference against Profile #1 could not be estimated. Compared to the mean depression score of the four profiles, Profiles 1 and 2 showed an increase in the estimated depression scores by approximately 0.09 points in the models when sociodemographic variables controlled for, whereas Profile #4 showed a decrease of approximately 0.38 points. Such differences may be from variables such as household income or marital status exacerbating depression in Profile #4 participants.

4. Discussion

4.1 Latent profiles of conformity to gender role norms

This study used the LPA technique to classify the profiles of gender role norms conformity among Korean men into four types—high conformity, medium conformity, non-conformity to gender stereotypes, and non-conformity to male gender roles. The high conformity profile accounted for 17.50% of the participants, similar in proportion to the two other profiles other than the medium conformity profile. This profile comprised relatively older men with a high level of education

TABLE 4. Demographic characteristics of the identified norm conformity profiles (N = 897).

	Profile 1 (N = 157, 17.50%)	Profile 2 (N = 420, 46.82%)	Profile 3 (N = 177, 19.73%)	Profile 4 (N = 143, 15.94%)	χ^2 (p)
Variable	n (%)	n (%)	n (%)	n (%)	
Age					
19–29	31 (19.75)	47 (11.19)	65 (36.72)	38 (26.57)	
30–39	21 (13.38)	73 (17.38)	46 (25.99)	39 (27.27)	
40–49	30 (19.11)	94 (22.38)	25 (14.12)	32 (22.38)	98.864 (<0.001)
50–59	34 (21.66)	98 (23.33)	29 (16.38)	16 (11.19)	
60–69	41 (26.11)	108 (25.71)	12 (6.78)	18 (12.59)	
Household Income (won)					
<3 M	44 (28.03)	105 (25.00)	39 (22.03)	57 (39.86)	
3.01 M–4 M	271 (13.38)	82 (19.52)	41 (23.16)	33 (23.08)	
4.01 M–5 M	24 (15.29)	76 (18.10)	23 (12.99)	20 (13.99)	29.654 (0.003)
5.01 M–7 M	34 (21.66)	72 (17.14)	36 (20.34)	18 (12.59)	
≥7.01 M	34 (21.66)	85 (20.24)	38 (21.47)	15 (10.49)	
Education					
High school	24 (15.29)	79 (18.81)	47 (26.55)	34 (23.78)	
College	20 (12.74)	47 (11.19)	7 (3.95)	17 (11.89)	24.933 (0.003)
University	88 (56.05)	228 (54.29)	102 (57.63)	84 (58.74)	
Graduate school	25 (15.92)	66 (15.71)	21 (11.86)	8 (5.59)	
Marital Status					
Married or living with a partner	95 (60.51)	287 (68.33)	83 (46.89)	52 (36.36)	55.084 (<0.001)
Other	62 (39.49)	133 (31.67)	94 (53.11)	91 (63.64)	

Profile 1: High conformity; Profile 2: Medium conformity; Profile 3: Non-conformity to gender stereotypes; Profile 4: Non-conformity to male gender roles.

TABLE 5. CES-D 8 item scores and total scores for depression across latent profiles (N = 897).

Item	Latent Profile (M (SD))				F (p)	*Post-hoc* test (Scheffe)
	Profile 1	Profile 2	Profile 3	Profile 4		
(1)	0.63 (0.75)	0.65 (0.71)	0.53 (0.72)	0.93 (0.76)	8.574 (<0.001)	P4 > P1, P2, P3
(2)	0.83 (0.93)	0.85 (0.80)	0.72 (0.87)	1.06 (0.94)	4.135 (0.006)	P4 > P3
(3)	0.64 (0.69)	0.68 (0.67)	0.60 (0.72)	0.92 (0.75)	6.163 (<0.001)	P4 > P1, P2, P3
(4)	1.45 (0.87)	1.72 (0.74)	1.45 (0.80)	1.90 (0.77)	13.660 (<0.001)	P2, P4 > P1, P3
(5)	1.38 (0.77)	1.69 (0.68)	1.45 (0.70)	1.83 (0.76)	14.579 (<0.001)	P2, P4 > P1, P3
(6)	0.68 (0.73)	0.82 (0.73)	0.74 (0.78)	1.01 (0.79)	5.407 (0.001)	P4 > P1, P3
(7)	0.91 (0.94)	0.99 (0.85)	0.84 (0.86)	1.14 (0.96)	3.379 (0.018)	P4 > P1
(8)	0.71 (0.78)	0.82 (0.73)	0.85 (0.82)	1.14 (0.90)	8.184 (<0.001)	P4 > P1, P2, P3
Total score	7.24 (4.60)	8.23 (4.04)	7.18 (4.36)	9.92 (4.79)	13.321 (<0.001)	P4 > P1, P2, P3

Profile 1: High conformity; Profile 2: Medium conformity; Profile 3: Non-conformity to gender stereotypes; Profile 4: Non-conformity to male gender roles. (1) I felt depressed; (2) I felt lonely; (3) I felt sad; (4) I was happy (reversed); (5) I enjoyed life (reversed); (6) Everything I did felt like an effort to me; (7) I had restless sleep; (8) I could not get "going." M, mean; SD, standard deviation; CES-D 8, Center for Epidemiologic Studies Depression 8-item scale.

TABLE 6. Summary of ANCOVA results (CES-D 8, N = 897).

Variable	SS	*df*	MS	*F* (*p*)	Partial-η^2
Age	21.760	1	21.760	1.206 (0.272)	0.001
Household income	279.170	1	279.170	15.472 (<0.001)	0.017
Education	44.965	1	44.965	2.492 (0.115)	0.003
Marital status	155.054	1	155.054	8.594 (0.003)	0.010
Gender role norms Norm conformity profiles	548.083	3	182.694	10.125 (<0.001)	0.033
Error	16040.247	889	18.043		
R^2 (adjusted R^2): 082 (0.075)					

MS, mean score; SS, standard score; CES-D 8, Center for Epidemiologic Studies Depression 8-item scale; ANCOVA, one-way analysis of covariance.

TABLE 7. Estimates of CES-D 8 scores across four profiles (N = 897).

Profile	Mean	SE	LLCI (95%)	ULCI (95%)	*Post hoc* test (Sidak)
Profile 1	7.330	0.341	6.661	7.999	P4 > P1, P2, P3; P2 > P3
Profile 2	8.321	0.211	7.907	8.735	
Profile 3	7.180	0.329	6.535	7.826	
Profile 4	9.541	0.362	8.830	10.252	

Profile 1: High conformity; Profile 2: Medium conformity; Profile 3: Non-conformity to gender stereotypes; Profile 4: Non-conformity to male gender roles; LLCI, lower limit confidence interval; ULCI, upper limit confidence interval; CES-D 8, Center for Epidemiologic Studies Depression 8-item scale; SE: standard error.

and showed the highest values for all latent variables inputted. This group represents the highest acceptance of socially and institutionally learned traditional gender role norms.

The medium conformity profile was numerically dominant, accounting for approximately half of the participants. Medium conformity profiles may converge toward the mean of various statistical values because of large samples within the group. Nevertheless, considering that LPA reflects the response pattern of each participant, most men showed similar levels of conformity to the dominant masculine norms in society. The medium conformity profile had higher values for traditional gender role attitudes and descriptive male norms than the mean, and this group had a higher mean age. This demonstrated that the universal perception of what a man should be in Korean society is still based on a gender dichotomy, predominantly maintained by the older generation.

The non-conformity to gender stereotypes profile, which showed conformity to various male gender role norms but low scores for traditional gender role attitudes and descriptive male gender role norms, included those participants whose age was distinctly lower than the mean age in the high and medium conformity profiles, with a higher percentage of men aged 20–29. This conformity is not because male gender roles are masculine but because adherence to these roles is universally accepted. Woo [16] found that men aged 20–29, who place importance on traditional Korean masculine norms but do not believe such norms should include discrimination against women and gay men, belonged to this profile. According to Ma *et al*. [31], Korean men aged 20–29 years, who are apathetic about gender stereotypes, tend to place importance on professionalism, rationality, and self-development and may exhibit transnational business masculinity [65].

The non-conformity to male gender roles profile, mainly comprising those aged 20–39 years, accounted for 15.94% of all samples. This profile comprised men who had a lower income level and several participants with graduate degrees compared to the other profiles, and they tended not to be married or living with a partner. They deviate from traditional norms and align with the awareness and attitudes of young men who face a state of regularity for male gender role norms, as indicated by studies on masculinity among Korean men. Their propensity to pursue personal pleasure and well-being and the desire for personal rights to make economic and sexual decisions while rejecting the performance of male gender roles suggests low conformity to male gender role norms and the average level of traditional gender role attitudes. Meanwhile, this study's findings indirectly support the literature indicating that Korean young men feel deprived of the benefits afforded older generations due to a lack of masculine norms and barriers to achieving the status of being a man [31, 45, 47].

As this was a cross-sectional study, it should be noted that differences in the profiles may be due, in part, to the effect of age rather than cohort or generation, indicating that Korean men enjoy the freedom of socially acceptable masculinity and explore how to conform to gender role norms when they are younger and gradually, as they age, conform to those norms. In other words, the storyline of traditional masculinity concerning becoming an "adult", where men learn about male gender roles by departing from "naïvety" while adapting to social or organizational life, continues to exist in Korean society. If this

assumption is valid, then the samples involving ages below the average belonging to the non-conformity to male gender roles profile may eventually migrate to medium conformity or high conformity profiles.

The cultural context of East Asia seems to be related to the manifestation of low income as non-conformity to male gender roles among Korean youth. As highlighted by Kersten [66], there are notable differences in the prevalence of rape and prostitution between Japan, Australia, and Germany. This difference may be due to the evolution of hegemonic masculinity in Japan, transitioning from the feudal ruler, the samurai, to the modern representation of the salaryman. Japan's growing economic power has conferred legitimacy to the status of the salaryman in contemporary society, with financial resources becoming a primary means of sexual dominance. South Korea, having adopted Japan's corporate culture and undergoing similar rapid economic growth, shares a parallel narrative. Furthermore, the collectivist social culture prevalent among East Asian men, characterized by close-knit relationships with family and friends, may also contribute to distinctive variations in masculinity profiles, including factors such as male friendships and familial responsibilities.

4.2 Depression

Regarding the relationship between conformity to gender role norms profiles and depression, the non-conformity to male gender roles profile had the highest depression scores compared to the other profiles, and the medium conformity profile had the second highest depression scores, followed by the high conformity profile and the non-conformity to gender stereotypes profile.

From a variable-oriented perspective, it may be that conforming to certain gender role norms is associated with well-being because it is consistent with societal expectations [15]. The correlation between certain masculine traits and behaviors in reducing depression and traditional gender role attitudes, as well as the association between conflict with gender roles and increasing depression among Korean men, has been observed [24, 25]. Friendship with male friends is closely associated with social support, and thus, it can reduce depression. Initiative is associated with active problem-solving, which is consistent with men's coping styles, based on Canetto [21] and Spendelow [26]. The negative effects of traditional gender role attitudes may be due to gender role strain. These attitudes can be what motivates men to perform certain behaviors to prove their masculinity to themselves and others, but failing to do so increases the likelihood of depression [14].

Taking an actor-oriented perspective, the attributes associated with non-conformity to male gender roles are linked to the deterioration of mental health. Upon initial examination, these results may appear contradictory to previous studies on male depression that employed similar methodologies [28, 29, 31, 32]. However, it is noteworthy that those studies specifically focused on adult male workers, who are expected to conform to traditional gender roles. Consequently, these individuals may experience heightened psychological tension due to concerns about preserving their masculinity. In contrast, the present study targeted young men who exhibited poorer health outcomes. It is plausible that these individuals, being more susceptible to the effects of anomie, experienced a sense of distress.

Men who reject masculine norms are stigmatized as being abnormal by other men around them and the opposite sex, causing them to experience difficulties in accessing socioeconomic resources and social capital [4, 8]. A prime example is the concept of masculine capital, which states that "unmanly" self-care and healthcare utilization are more widely accepted among those who adhere more strictly to masculine norms [11]. Meanwhile, a marginalized male group is likely to exhibit hyper-masculine behavior to compensate for not being able to obtain the rewards associated with manhood or traditional masculinity [67]. Under a state of normlessness or male identity crisis, men may exhibit more competitive and dominating attitudes, leading to shame and a sense of inferiority regarding their own socioeconomic status, creating a vicious cycle that fosters negative mental health. Given the distinctive features of Korean society, it is plausible to suggest a potential association between this group and the occurrence of online or offline conflicts involving the older generation and females, with a frequent occurrence of such encounters [31, 45, 46]. Nonetheless, there may be a response bias in the group that conforms to gender role norms, where they provide positive responses deliberately to fit the image of a healthy male [20, 23].

Meanwhile, the analysis of latent masculinity profiles showed how conformity to gender role norms differentially related to Korean men's mental health with respect to depressive symptoms. The non-conformity to male gender roles profile showed the largest difference in depression scores compared to the non-conformity to gender stereotypes profile. Both these profiles appeared more typically in groups younger than the mean age, and as young men aged 20–39 years become older, the disparity in mental health between the two groups may become more distinct than the older generation aged 40 years or older.

Given the cross-sectional design employed in this study, establishing definitive causal links between the COVID-19 pandemic and variations in masculine norm profiles and depression becomes challenging. However, the findings of Hadar-Shoval *et al*. [68], which indicate that economic hardships during the pandemic exacerbated men's mental health, support the suggestion that observed higher depression scores among masculine norm profiles with lower household incomes may be associated with the COVID-19 context. Additionally, studies such as Jeong *et al*. [69], highlighting the detrimental effects of increased burden of domestic labor and decreased income in Korean young men, and Simpson *et al*. [70], identifying social disconnection among Canadian men, are in line with the experiences of disenfranchised young men observed in this study. Further research is warranted to explore the relationship between the COVID-19 pandemic and masculinity and mental health, particularly among non-Western male populations.

4.3 Limitations

This study represents a unique exploration of the relationship between masculine norms conformity and mental health

among non-Western men, particularly Korean men. However, it is important to acknowledge that despite its significance, this study possesses several limitations. First, causality between the variables cannot be determined because cross-sectional data were used. Moreover, masculine norms used in the study have the characteristics of being formed over a long period of time, making it challenging to identify the effect size and direction of the variables accurately through a single cross-sectional study. Conformity to gender role norms may be linked to mental health outcomes and *vice versa*, mental health outcomes may be associated with norm conformity profiles. For example, when depressed or anxious, a man may be more likely to conform to the expectations of others as a way to alleviate the distress.

Additionally, the study is limited in the tools used. The descriptive male norm conformity variable developed for this study's purpose was not tested for validity or reliability. Moreover, the masculine norms of Koreans living in the current period were not completely reflected in the tool. Furthermore, only a few items from the existing gender role scale were used for the survey. Therefore, this study does not rigorously explain the mechanism between masculinity and depression. Instead, it examined the relationship between certain characteristics of masculinity categorized from a public health sociology perspective and depression as a broader social phenomenon strictly from an exploratory perspective. Another limitation is data were collected on presumably cisgender men and no data was collected that identified transgender men or men of diverse sexual orientations. There may have been qualitatively different profiles if these characteristics had been included in the analysis.

Finally, and perhaps most significantly, a major limitation of this study lies in the limited explanatory power of the constructed analytical model, which yielded an R-squared value of 0.75. This can be attributed, in part, to the divergent relationship observed between depression and masculine norms within deprived male groups. These groups may exhibit a simultaneous vulnerability to depression in unstable situations while also displaying a tendency to deny symptoms in order to uphold traditional masculine ideals. Additionally, the limited explanatory power can be attributed to the omission of other relevant biological and psychological factors that were not encompassed by this study.

5. Conclusions

This study's findings showed that men are not a distinct group within gender relations, and more marginalized groups can be identified among men. Moreover, marginalized men had relatively poorer health. Young Korean men are distancing themselves from traditional male gender role norms because it does not provide the benefits of traditional male roles, such as decision-making as the head of household, and they face dire socioeconomic conditions. Forcing such individuals to conform to an authoritative masculinity model is unrealistic and does not serve a fundamental purpose. Existing masculine norms involve health risk behaviors, such as alcohol abuse and smoking, and social pressure created by such norms results in tension and poor health [8, 14]. Notably, traditional masculinity is predicated on male dominance over females [27, 71]. Therefore, alternative masculinities that emphasize health and gender equality must be established for universal health promotion. A new perspective of manhood, such as one with a "caring masculinity", with a pattern of behavior and relationships for supporting health, and health recognition as a human right, is required [72]. Hence, there is an urgent need for men's health research focusing on gender, not only biologically but also social relationships.

AVAILABILITY OF DATA AND MATERIALS

Any queries regarding the data used in this study may be directed to the corresponding author. The dataset used in this study is available upon reasonable request.

AUTHOR CONTRIBUTIONS

The author confirms sole responsibility for the study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Institutional Review Board of Seoul National University (2201/003-003). Informed consent was obtained from all participants.

ACKNOWLEDGMENT

I would like to thank Byong-hee Cho for his assistance in this research study.

FUNDING

This research received no external funding.

CONFLICT OF INTEREST

The author declares no conflict of interest.

REFERENCES

[1] Robertson S, Gough B, Robinson M. Masculinities and health inequalities within neoliberal economies. Masculinity, Labour, and Neoliberalism. 2018; 13: 311–334.

[2] McDowell L, Bonner-Thompson C. The other side of coastal towns: young men's precarious lives on the margins of England. Environment and Planning A: Economy and Space. 2020; 52: 916–932.

[3] Griffith DM. Achieving men's health equity. In Smalley KB, Warren JC, Fernandez MI (eds.) Health equity: a solutions-focused approach (pp. 197–215). 1st ed. Springer Publishing Company: New York, USA. 2020.

[4] Seidler ZE, Rice SM, Ogrodniczuk JS, Oliffe JL, Shaw JM, Dhillon HM. Men, masculinities, depression: implications for mental health services from a Delphi expert consensus study. Professional Psychology: Research and Practice. 2019; 50: 51–61.

[5] Connell RW. Masculinities. 1st edn. University of California Press: Berkeley, Los Angeles. 1995.

[6] Vandello JA, Bosson JK. Hard won and easily lost: a review and synthesis of theory and research on precarious manhood. Psychology of Men & Masculinity. 2013; 14: 101–113.

[7] Griffith DM. Promoting men's health equity. American Journal of Men's Health. 2020; 14: 1557988320980184.

[8] Courtenay WH. Constructions of masculinity and their influence on men's well-being: a theory of gender and health. Social Science & Medicine. 2000; 50: 1385–1401.

[9] Vandello JA, Wilkerson M, Bosson JK, Wiernik BM, Kosakowska-Berezecka N. Precarious manhood and men's physical health around the world. Psychology of Men & Masculinities. 2023; 24: 1–15.

[10] Robertson S. "I've been like a coiled spring this last week": embodied masculinity and health. Sociology of Health and Illness. 2006; 28: 433–456.

[11] de Visser RO, McDonnell EJ. "Man points": masculine capital and young men's health. Health Psychology. 2013; 32: 5–14.

[12] Wong YJ, Wang SY. Toward an integrative psychology of masculinities. Psychology of Men & Masculinities. 2022; 23: 285–298.

[13] Iwamoto DK, Brady J, Kaya A, Park A. Masculinity and depression: a longitudinal investigation of multidimensional masculine norms among college men. American Journal of Men's Health. 2018; 12: 1873–1881.

[14] Levant RF, Powell WA. The gender role strain paradigm. The Psychology of Men and Masculinities (pp. 15–43). 1st ed. American Psychological Association: Washington, DC. 2017.

[15] Mahalik JR, Locke BD, Ludlow LH, Diemer MA, Scott, RP, Gottfried M, *et al*. Development of the conformity to masculine norms inventory. Psychology of Men & Masculinity. 2003; 4: 3–25.

[16] Woo S. What is the masculinity of Korean men? Concept mapping of masculinity. Korean Journal of Culture and Social Issues. 2019; 25: 203–229. (In Korean)

[17] Wong YJ, Ho MR, Wang SY, Miller IS. Meta-analyses of the relationship between conformity to masculine norms and mental health-related outcomes. Journal of Counseling Psychology. 2017; 64: 80–93.

[18] Hoy S. Beyond men behaving badly: a meta-ethnography of men's perspectives on psychological distress and help seeking. International Journal of Men's Health. 2012; 11: 202–226.

[19] Kaya A, Iwamoto DK, Brady J, Clinton L, Grivel M. The role of masculine norms and gender role conflict on prospective well-being among men. Psychology of Men & Masculinities. 2019; 20: 142–147.

[20] Sileo KM, Kershaw TS. Dimensions of masculine norms, depression, and mental health service utilization: results from a prospective cohort study among emerging adult men in the United States. American Journal of Men's Health. 2020; 14: 1557988320906980.

[21] Canetto SS. Suicide: why are older men so vulnerable? Men and Masculinities. 2017; 20: 49–70.

[22] Van Doorn G, Teese R, Gill PR. Prospective associations between hegemonic masculinity and incident depression/depressive symptoms: results from a national sample of Australian emerging adult men. Personality and Individual Differences. 2021; 179: 110899.

[23] Hammer JH, Good GE. Positive psychology: an empirical examination of beneficial aspects of endorsement of masculine norms. Psychology of Men & Masculinity. 2010; 11: 303–318.

[24] Kim J, Choi H. Self-esteem as a mediator between instrumentality, gender role conflict and depression in Korean middle-aged men. The Korean Journal of Woman Psychology. 2007; 12: 145–160. (In Korean)

[25] Song R, Lee M-A. Gender role attitude and depressive symptoms: comparisons across gender and age groups. Korea Journal of Population Studies. 2012; 35: 87–116. (In Korean)

[26] Spendelow JS. Men's self-reported coping strategies for depression: a systematic review of qualitative studies. Psychology of Men & Masculinity. 2015; 16: 439–447.

[27] Creighton G, Oliffe JL. Theorising masculinities and men's health: a brief history with a view to practice. Health Sociology Review. 2010; 19: 409–418.

[28] Kim SY, Lee J, Wester SR, Fouad N. Do "manly" men believe other men are happier? Social comparison, masculine norms, and positive work-family spillover. Psychology of Men & Masculinities. 2020; 21: 251–265.

[29] McDermott RC, Addis M, Gazarian D, Eberhardt ST, Brasil KM. Masculine depression: a person-centric perspective. Psychology of Men & Masculinities. 2022; 23: 362–373.

[30] Milner A, Shields M, King T. The influence of masculine norms and mental health on health literacy among men: evidence from the ten to men study. American Journal of Men's Health. 2019; 13: 1557988319873532.

[31] Ma KH, Moon HY, Cho SY, Kim R. Hegemonic masculinity and changing lives of men. Korean Women's Development Institute: Seoul, Republic of Korea. 2017.

[32] Kilian R, Müller-Stierlin A, Söhner F, Beschoner P, Gündel H, Staiger T, *et al*. Masculinity norms and occupational role orientations in men treated for depression. PLOS ONE. 2020; 15: e0233764.

[33] Connell RW, Messerschmidt JW. Hegemonic masculinity: rethinking the concept. Gender & Society. 2005; 19: 829–859.

[34] Messerschmidt JW. Engendering gendered knowledge: assessing the academic appropriation of hegemonic masculinity. Men and Masculinities. 2012; 15: 56–76.

[35] Griffin B. Hegemonic masculinity as a historical problem. Gender & History. 2018; 30: 377–400.

[36] Wedgwood N, Connell R, Wood J. Deploying hegemonic masculinity: a study of uses of the concept in the journal Psychology of Men & Masculinities. Psychology of Men & Masculinities. 2022; 24: 83–93.

[37] Lapinski MK, Rimal RN. An explication of social norms. Communication Theory. 2005; 15: 127–147.

[38] Cialdini RB. Descriptive social norms as underappreciated sources of social control. Psychometrika. 2007; 72: 263–268.

[39] Bird CE, Rieker PP. Gender matters: an integrated model for understanding men's and women's health. Social Science & Medicine. 1999; 48: 745–755.

[40] Laurie T. Complicit masculinity and the serialization of violence: notes from Australian cinema. Continuum. 2022; 36: 64–83.

[41] Yi J. The age of depression: medicalization of melancholia and the meaning of autobiographical narrative discourse of depression. The Korean Journal of Humanities and the Social Sciences. 2022; 46: 125–152.

[42] K·Indicator. Suicide rate 2022. 2023. Available at: https://www.index.go.kr/unify/idx-info.do?idxCd=8040 (Accessed: 27 March 2023).

[43] Health Insurance Review & Assessment Service. Healthcare Bigdata Hub 2018. 2018. Available at: http://opendata.hira.or.kr/op/opc/olapHthInsRvStatInfo.do (Accessed: 28 March 2023).

[44] Ministry of Health and Welfare. Covid-19 National Mental Health Survey 2021. 2021. Available at: https://www.mohw.go.kr/react/al/sal0301vw.jsp?PAR_MENU_ID=04&MENU_ID=0403&page=1&CONT_SEQ=369669 (Accessed: 28 March 2023).

[45] Kim S, Lee Y. The discursive construction of men-the weak identity *via* online community. Journal of Korean Women's Studies. 2017; 33: 67–107.

[46] Park MN, Min H, Jang TH. A study of male youth's perception of misogyny: focused on Gangnam station murder case. Korean Journal of Communication Studies. 2019; 27: 85–111. (In Korean)

[47] Bae E. Gendering 'young generation' discourses: focusing on the concept of masculinity. Gender and Culture. 2015; 8: 7–41. (In Korean)

[48] Gunn V, Vives A, Zaupa A, Hernando-Rodriguez JC, Julià M, Kvart S, *et al.* Non-standard employment and unemployment during the COVID-19 crisis: economic and health findings from a six-country survey study. International Journal of Environmental Research and Public Health. 2022; 19: 5865.

[49] Mills R, Zullig KJ, Theeke LA, Lander LR, Hobbs G.R, Herczyk J, *et al.* Assessing loneliness among adults receiving outpatient treatment with medication for opioid use disorder (MOUD). International Journal of Environmental Research and Public Health. 2022; 19: 13481.

[50] Radloff LS. The CES-D scale: a self-report depression scale for research in the general population. Applied Psychological Measurement. 1977; 1: 385–401.

[51] Turvey CL, Wallace RB, Herzog R. A revised CES-D measure of depressive symptoms and a DSM-based measure of major depressive episodes in the elderly. International Psychogeriatrics. 1999; 11: 139–148.

[52] Karim J, Weisz R, Bibi Z, ur Rehman S. Validation of the eight-item center for epidemiologic studies depression scale (CES-D) among older adults. Current Psychology. 2015; 34: 681–692.

[53] Beller J, Regidor E, Lostao L, Miething A, Kröger C, Safieddine B, *et al*. Decline of depressive symptoms in Europe: differential trends across the lifespan. Social Psychiatry and Psychiatric Epidemiology. 2021; 56: 1249–1262.
[54] Levant R, Smalley K, Aupont M, House A, Richmond K, Noronha D. Initial validation of the male role norms inventory-revised (MRNI-R). The Journal of Men's Studies. 2007; 15: 83–100.
[55] Levant RF, McDermott R, Parent MC, Alshabani N, Mahalik JR, Hammer JH. Development and evaluation of a new short form of the conformity to masculine norms inventory (CMNI-30). Journal of Counseling Psychology. 2020; 67: 622–636.
[56] Worthington RL, Whittaker TA. Scale development research: a content analysis and recommendations for best practices. The Counseling Psychologist. 2006; 34: 806–838.
[57] Park S, Jo E. Male gender role and adjustment of Korean men. Korean Journal of Psychological and Social Issues. 2002; 8: 77–103. (In Korean)
[58] Lee SY, Kim IS, Kim JH, Kim JA. Development of Korean male gender role conflict scale. The Women's Studies. 2012; 82: 5–33.
[59] Cialdini RB, Trost MR. Social influence: social norms, conformity and compliance. In Gilbert DT, Fiske ST, Lindzey G. (eds.) The handbook of social psychology (pp. 151–192). 1st ed. McGraw-Hill: New York. 1998.
[60] Halimi M, Consuegra E, Struyven K, Engels N. A critical examination of the reliability and validity of a gender role attitude scale in Flanders (Belgium): what lessons can be learned? Sex Roles. 2018; 78: 423–438.
[61] Messner MA. The limits of "the male sex role": an analysis of the men's liberation and men's rights movements' discourse. Gender & Society. 1998; 12: 255–276.
[62] Vermeersch H, T'sjoen G, Kaufman JM, Vincke J, Van Houtte M. Gender ideology, same-sex peer group affiliation and the relationship between testosterone and dominance in adolescent boys and girls. Journal of Biosocial Science. 2010; 42: 463–475.
[63] Minimum Wage Commision. Analysis of real living cost for unmarried single workers 2022. 2022. Available at: http://minimumwage.go.kr/open/research/view.do?bultnId=4212&pageUnit=10&pageIndex=1&bultnCd=BB (Accessed: 29 March 2023).
[64] Lubke G, Muthén BO. Performance of factor mixture models as a function of model size, covariate effects, and class-specific parameters. Structural Equation Modeling: a Multidisciplinary Journal. 2007; 14: 26–47.
[65] Connell RW, Wood J. Globalization and business masculinities. Men and Masculinities. 2005; 7: 347–364.
[66] Kersten J. Culture, masculinities and violence against women. The British Journal of Criminology. 1996; 36: 381–395.
[67] Willer R, Rogalin CL, Conlon B, Wojnowicz MT. Overdoing gender: a test of the masculine overcompensation thesis. American Journal of Sociology. 2013; 118: 980–1022.
[68] Hadar-Shoval D, Alon-Tirosh M, Asraf K, Tannous-Haddad L, Tzischinsky O. The association between men's mental health during COVID-19 and deterioration in economic status. American Journal of Men's Health. 2022; 16: 15579883221082427.
[69] Jeong H, Park S, Kim J, Oh K, Yim HW. Mental health of Korean adults before and during the COVID-19 pandemic: a special report of the 2020 Korea national health and nutrition examination survey. Epidemiology and Health. 2022; 44: e2022042.
[70] Simpson NJ, Oliffe JL, Rice SM, Kealy D, Seidler ZE, Ogrodniczuk JS. Social disconnection and psychological distress in canadian men during the COVID-19 pandemic. American Journal of Men's Health. 2022; 16: 15579883221078145.
[71] Jewkes R, Morrell R, Hearn J, Lundqvist E, Blackbeard D, Lindegger G, *et al*. Hegemonic masculinity: combining theory and practice in gender interventions. Culture, Health & Sexuality. 2015; 17: 112–127.
[72] Elliott K. Caring masculinities: theorizing an emerging concept. Men and Masculinities. 2016; 19: 240–259.

How to cite this article: Joon-Yong Yang. Profiles of conformity to gender role norms and depression among adult Korean men. Journal of Men's Health. 2023; 19(10): 64-77. doi: 10.22514/jomh.2023.100.