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Measuring Restrictive Masculinity: Development and Implementation Within University Students

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Abstract: Restrictive masculinity is a rigid construct of how to define manliness that is associated with several health harms. The current study sought to develop a brief questionnaire to measure restrictive masculinity. The questionnaire items were based on the restrictive masculinity norms defined by the Organisation for Economic Co-operation and Development (OECD) Development Centre and refined through expert input and focus group sessions. The restrictive masculinity questionnaire was then administered to n = 506 university students via an online survey. Exploratory factor analysis was used to identify the questionnaire's latent structure, and sociodemographic, behavioral, and mental health predictors of holding restrictive masculinity norms were explored. A twelve-item questionnaire containing two latent constructs (i.e., political/economic sphere and private sphere) and three measured variables had a good model fit (RMSEA [90%CI] = 0.05 [0.04,0.07], CFI = 0.98, TLI = 0.96, and SRMR = 0.03). Participants identifying as heterosexual cis-males and reporting illicit substance use were positively associated with restrictive masculinity norms. Although further development is needed, this 12-item questionnaire may be a useful tool to measure restrictive masculinity norms. Early interventions should be considered to reduce the impact of restrictive masculinity on individual and population health.

Keywords: masculinity; restrictive masculinity; survey; college students; mental health

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1. Introduction

Restrictive masculinity is a rigid and inflexible expectation of how to define being "manly", typically tied to stereotypical and outdated beliefs set as the benchmark for ideal male behavior (OECD 2021; Barry et al. 2020). Shared by both men and women, these social norms leave little room for interpretation of what "masculinity" is considered to be and stand in stark contrast to gender-equitable masculinities, which provide greater flexibility of a man's role and behavior (OECD 2021). Related to, but distinct from other constructs, such as toxic or hegemonic masculinity (Parent et al. 2019; Jewkes et al. 2015), restrictive masculinity is broadly defined by ideals that are associated with an aggressive, dominant nature that often align with inequality among genders inside and outside the home (OECD 2021; Barry et al. 2020). The Organisation for Economic Co-operation and

Development (OECD) Development Centre more specifically defines restrictive masculinity as dominance in the economic and political sphere, such as being financially dominant over women and working in inherently hazardous jobs, and in the private sphere, such as control of household assets and control over sexual and reproductive choices (OECD 2021).

Restrictive masculinity has been similarly defined by others as well. In the Man Box study, participants in Mexico, the United Kingdom (UK), and the United States (US) consistently defined masculine traits that conform to traditional, normative beliefs (Heilman et al. 2017). Under this model, seven pillars of the "Man Box" were identified, including self-sufficiency, acting tough, physical attractiveness, rigid masculine gender roles, heterosexuality and homophobia, hypersexuality, and aggression and control. Those who align and accepted these traits tended to feel greater empowerment while simultaneously dictating a woman's role to complement their position. Any behaviors or beliefs outside these criteria led to an individual being "outside the Man Box", typically associated with positive, equitable attributes that celebrate healthy masculinity (Heilman et al. 2017).

1.1. Restrictive Masculinity and Health

Following or believing in restrictive masculinity normative behavior is associated with negative health behaviors, although the literature is still maturing. For example, multiple studies have linked traditional masculine ideology and actions to harmful health behaviors, such as increased substance use (Matud et al. 2019; Obot and Room 2005). Also, men who show higher rates of externalizing disorders, which may be promoted within the restrictive masculinity framework, are more likely to demonstrate disinhibition behaviors and are at higher risk for alcohol and drug dependence (Parent et al. 2019; Eaton et al. 2012). Achieving intoxication is often intertwined within masculine norms, and heavy alcohol consumption and alcohol intoxication may be used as validation for masculine behaviors, which subsequently encourages excessive alcohol consumption among men and creates a positive feedback loop between masculine norms and consumptive behaviors (Iwamoto et al. 2011). Consequently, intoxicated behavior among men is often normalized at the societal level and, at times, even celebrated as a demonstration of masculine identity (McKenzie et al. 2018). While public health measures often view intoxication as a precursor to problematic behavior, other perspectives reinforce societal masculine norms by arguing that intoxication serves as a mechanism for social bonding and relaxation.

Furthermore, adherence to dominance, aggression, and emotional suppression normative behaviors are positively associated with depression in men (Parent et al. 2019). However, most research has treated masculinity broadly, ignoring the complex nature of masculine identities. For example, restrictive masculinity also involves aspects of homophobia, misogyny, and a drive to win, and these elements often intensify behaviors that contribute to poor mental health outcomes. Additionally, restrictive masculinity may exacerbate symptoms of poor mental health through the concept of "masculine depression." This variation in depression deviates from typical symptoms, such as sadness or tearfulness, and instead manifests through emotional numbness, anger, excessive substance use, or isolation. Men influenced by restrictive masculine ideals often repress vulnerable emotions like sadness to align with societal expectations of toughness (Iwamoto et al. 2018). As a result, their depression symptoms become externalized, leading to aggressive behaviors, or internalized, manifesting as feelings of failure and shame. This gendered expression of mental illness often goes unrecognized or misdiagnosed, causing further deterioration in men's psychological well-being.

1.2. Predicting Restrictive Masculinity Norms

Belief in restrictive masculinity norms may arise from the presence or absence of social support. The availability of social support has been associated with restrictive masculinity behaviors, where men reporting low social support were more likely to desire independence, more likely to have difficulty confiding in others, and more likely to differentiate the types of relationships they hold with men and women (Connell and Messerschmidt 2005). A lack of social support may cause men to further repress their feelings because of either not knowing how to, or not feeling like they can, express emotions in ways that are empowering, which can further compromise their image and perpetuate restrictive masculinity ideals (Bortolai and Malfitano 2023; Bryant-Bedell and Waite 2010). Among men, holding restrictive masculinity beliefs may also result from poor father–son interactions, little to no spirituality, or living in environments of hypermasculinity, all of which are also associated with depression and anxiety symptoms (Cleary 2022; Boxer and Gill 2021; Rivera et al. 2022).

Environmental and cultural factors may reinforce the development of restrictive masculinity norms by influencing behaviors, perceptions, and attitudes across different contexts. For example, the military has a hierarchical and segregated structure that promotes dominance and toughness while also encouraging emotional suppression and limiting women's leadership roles (Mayrand Nicol and Mayrand Nicol 2024; Silvestrini and Chen 2023). Younger men that hold restrictive masculinity norms are more likely to join Greek life and fraternal organizations, which can perpetuate restrictive masculinity ideals through hypermasculine hazing rituals, such as excessive drug and alcohol usage, violence, and sexualization of women (Waterman et al. 2020; Zerneschel and Perry 2017). Additionally, restrictive masculinity norms are often idealized in athletics, particularly by supporting aggressive and violent tendencies (O'Brien et al. 2018).

1.3. Current Study

The literature on restrictive masculinity as a distinct concept is still developing, although preliminary work suggests a large role in the development of poor health behaviors and symptoms of mental illness in men. However, measuring restrictive masculinity tendencies is difficult, and there are few standardized methodologies in the literature to measure the topic. As a result, the current study sought to develop a brief questionnaire to measure restrictive masculinity norms, based on those previously developed by the OECD Development Centre (OECD 2021), through an exploratory factor analysis/structural equation modeling approach. After the items were finalized and the factor structure of the questionnaire was estimated, potential predictors of restrictive masculinity were explored.

2. Materials and Methods

2.1. Sample

The data were collected via a cross-sectional survey distributed in January 2024 to college students attending a private university in the Northeast US. Study invitations were sent to university-issued email addresses (n = 7725). Participants were eligible if they confirmed enrollment at the university in any undergraduate or graduate program, in person or online; were 18 years old or older; and had an email address that was valid at the time of data collection. The study invitations contained a link to a screening survey that confirmed eligibility and included attention and location checks. If an eligible individual was interested in completing the survey, they read a digital description of the study and provided informed consent via affirmation immediately following the screening survey. The data were collected using the Qualtrics platform (Provo, UT, USA), and the participants received a USD10 electronic gift card after survey completion.

The response rate to the email invitation was 7.1% (n = 552). The response rates were limited by the available resources for survey incentives. After a review for eligibility, n = 526 individuals (95.3% of respondents) were considered eligible. Three respondents failed the attention check, two failed the location check, and fifteen did not provide informed consent. The current analysis was also limited to participants with complete demographic and health behavior information (n = 506, 91.7% of respondents). This study was approved by the Institutional Review Board at [blinded for review] (protocol #230905).

2.2. Measures

The initial items for the restrictive masculinity questionnaire were developed based on the ten restrictive masculinity norms previously published by the OECD (OECD 2021). The items and potential response options were discussed within the study team and an external expert in gender equity and women's health. At this stage, two additional items (i.e., *Men should be able to freely express their emotions through crying* and *Men should respect a woman's decision if they say no to sex*) were added to the survey, and a 5-point Likert scale, ranging from *strongly disagree* to *strongly agree,* was selected as the response scale, although a semantic differential scale was also discussed. Feedback on the 12-item questionnaire was then solicited from a focus group of university students, who suggested edits to the items, which were accepted. The final questionnaire items are in Table 2. The response options were coded from 0 to 4, and three items (i.e., *Men should care for children and complete household chores, Men should be able to freely express their emotions through crying,* and *Men should respect a woman's decision if they say no to sex*) were reverse coded.

Several additional measures were collected from the survey participants. The sociodemographic variables included race, ethnicity, sex at birth, gender identity, sexual orientation, age, student status, school status, first-generation status, neurodevelopmental condition, and income. Race included *American Indian/Alaskan Native*, *Asian, Black/African American*, *Native Hawaiian/Pacific Islander*, *White*, and *some other race*, and the participants selected all that applied. Due to the low sample size, *American Indian/Alaskan Native*, *Native Hawaiian/Pacific Islander*, and *some other race* were collapsed into a single group. Ethnicity included *Hispanic* and *non-Hispanic*. To best reflect the intersectionality between sex at birth, gender identity, and sexual orientation (Fausto-Sterling 2019), these three variables were collapsed into a single sexual/gender status (SGS) variable consisting of *heterosexual cisgender (cis)-females, heterosexual cis-males,* and *any sexual or gender minorities*. Student status consisted of *full-time* and *part-time,* while school status was measured as year of enrollment, *freshmen* through *graduate level*. First-generation status used *yes* and *no* as the response options, and neurodevelopmental condition was measured as responding yes to being diagnosed with autism spectrum disorder, attention-deficit hyperactivity disorder, or a learning disability. Self-reported income was categorized as being below the poverty line for a single individual in 2024, above the poverty line but below the living wage for the institution's state, and above a living wage (Office for the Assistant Secretary for Planning and Evaluation (ASPE) 2024; Glasmeier 2024).

Mental health measures included depression symptoms, anxiety symptoms, and suicide ideation. The Center of Epidemiologic Studies Depression Scale (CES-D10) was used to measure depression symptoms (Björgvinsson et al. 2013). The responses across the 10 items were captured on a 5-point Likert scale from *rarely or none of the time,* coded as 0, to *most of the time*, coded as 4. The responses were aggregated via summation ($\alpha = 0.83$). The 7-item Generalized Anxiety Disorder (GAD-7) was used to measure anxiety symptoms (Spitzer et al. 2006). The responses were captured on a 4-point Likert scale ranging from *not at all*, coded as 0, to *nearly every day*, coded as 3. The responses were also aggregated by summation ($\alpha = 0.92$). Suicide ideation was measured using a single item (i.e., *During*

the past 12 months, did you ever seriously consider attempting suicide?) with *yes* and *no* as the response options (Centers for Disease Control and Prevention 2020).

Substance use measures included alcohol use and illicit substance use. Alcohol use was measured using the 3-item Alcohol Use Disorder Identification Test-Consumption (AUDIT-C) (García Carretero et al. 2016). The items used differing 5-point Likert scales, which were coded from 0 to 4. The AUDIT-C scores were calculated through the summation of all the items ($\alpha = 0.75$). Illicit substance use was measured using one item (i.e., *During the past 30 days, did you use any of the following illicit drugs?*), and any use of cocaine, heroin, methamphetamine, ecstasy, other hallucinogens, or prescription pain medicine without a prescription was considered positive for use.

2.3. Analysis

All the continuous variables were considered normally distributed after examination of their distributions, and descriptive statistics are reported for all the variables. The latent factor structure of the restrictive masculinity questionnaire was explored using exploratory factor analysis (EFA). The initial model consisted of 2 latent constructs (i.e., *economic/political* and *private*) as suggested by the OECD report (OECD 2021), and 6 items were loaded onto each construct. Items with low factor loadings (<0.5) were removed from the latent constructs but remained in the model as measured variables. Modification indices were then consulted to improve the model fit. The model fit was assessed using the Root Mean Square Error of Approximation (RMSEA), comparative fit index (CFI), Tucker–Lewis index (TLI), and the Standardized Root Mean Square Residual (SRMR). The model fit was considered acceptable if the RMSEA ≤ 0.05, CFI ≥ 0.95, TLI ≥ 0.95, and SRMR ≤ 0.08.

After the factor structure of the restrictive masculinity questionnaire was finalized, exploratory latent regression models were specified to identify potential sociodemographic and mental health predictors of restrictive masculinity. Because of the number of sociodemographic and mental health variables measured in the survey, a clustered forward selection process was implemented. Models consisting of similar variables were specified, and significant predictors were carried over to the final latent regression model. The variable clusters were the sociodemographic variables (i.e., race, ethnicity, sexual/gender status, age, student status, school status, first-generation status, neurodevelopmental condition, and income), mental health variables (i.e., CES-D10 score, GAD-7 score, and suicide ideation), and substance use variables (i.e., AUDIT-C score and illicit substance use). Identifying as non-Hispanic, heterosexual cis-female, part-time school status, not being a first-generation student, no neurodevelopmental condition, income below the poverty line, no suicide ideation, and no illicit substance use were the reference groups. All the other variables were treated as continuous. The descriptive statistics were calculated using SPSS v28.0 (Armonk, NY, USA: IBM Corp). The EFA and latent regression models were specified using Mplus version 8.3 (Los Angeles, CA, USA: Muthén & Muthén). The models were estimated using maximum likelihood, and statistical significance was set at $\alpha = 0.05$.

3. Results

Overall, the sample was primarily White (72.3%), non-Hispanic (79.1%), and $\leq$21 years old (78.9%) (Table 1). A plurality identified as heterosexual cis-female (43.5%), and a majority had personal incomes below the federal poverty limit (73.5%). Most participants were full-time students (90.9%); freshmen were the most represented (28.1%); and approximately one-third (36.4%) were first-generation students. One in five participants self-reported a neurodevelopmental condition (20.6%). The mean GAD-7 (range = 0 to 21) and AUDIT-C (range = 0 to 10) scores were below the thresholds indicating a disorder, but the mean CES-D10 score (range = 0 to 29) was above the cut-off for screening positive for

depression (Björgvinsson et al. 2013). One in ten participants reported past year suicide ideation (10.5%), and 3.6% reported any illicit substance use.

Table 1. Descriptive statistics (n = 506).

Variable		n (%) or Mean (SD)
Race	Asian	35 (6.9)
	Black/African American	88 (17.4)
	White	366 (72.3)
	Any Other	53 (10.5)
Ethnicity	Hispanic	106 (20.9)
	Non-Hispanic	400 (79.1)
Sexual/gender status	Heterosexual cis-female	220 (43.5)
	Heterosexual cis-male	100 (19.8)
	Sexual/gender minority	186 (36.8)
Suicide ideation	Yes	53 (10.5)
	No	452 (89.3)
Illicit substance use	Yes	18 (3.6)
	No	488 (96.4)
Student status	Full-time	460 (90.9)
	Part-time	46 (9.1)
School status	Freshman	142 (28.1)
	Sophomore	107 (21.1)
	Junior	105 (20.8)
	Senior	96 (19.0)
	Graduate student	56 (11.1)
First-generation student	Yes	184 (36.4)
	No	322 (63.6)
Age	18–21	399 (78.9)
	22–29	64 (12.6)
	30+	43 (8.5)
Income	Below poverty line	372 (73.5)
	Above poverty/below living wage	83 (16.4)
	Above living wage	51 (10.1)
Neurodivergent status	Yes	104 (20.6)
	No	402 (79.4)
CES-D10		11.0 (5.9)
GAD-7		7.1 (5.3)
AUDIT-C		2.4 (2.4)

The model fit of the EFA based on the OECD report was not acceptable (RMSEA [90%CI] = 0.12 [0.11, 0.13], CFI = 0.81, TLI = 0.76, and SRMR = 0.09). Based on the low factor loadings, one item was removed from the political/economic construct (i.e., *Men should be able to freely express their emotions through crying*), and two items were removed from the

private construct (i.e., *Men should protect family members, especially women and girls,* and *Men should respect a woman's decision if they say no to sex*). The modification indices also suggested that one item (i.e., *Men should care for children and complete household chores, like cooking and cleaning*) should load on both latent constructs. After the addition of item-level correlations, the final EFA model, consisting of the political/economic construct (six items), private construct (four items), and three measured items, was considered to have an acceptable model fit (RMSEA [90%CI] = 0.05 [0.04, 0.07], CFI = 0.98, TLI = 0.96, and SRMR = 0.03) (Table 2; Figure 1).

Table 2. Item-level factor loadings on identified latent constructs *.

Question	1	2
(1) Men should provide for the financial needs of the household.	0.44	
(2) Men should care for children and complete household chores, like cooking and cleaning.	−0.31	0.59
(3) Men should earn more money than women.	0.79	
(4) Men should work in physical jobs, such as a construction worker, truck driver, or fisherman.	0.51	
(6) For men, work should be more important than anything.	0.71	
(7) Men should be strong, tough, and assertive leaders.	0.55	
(8) Men should have the final say in household decisions.		0.79
(9) Men should control everything in the household.		0.87
(11) Men should always be the one to initiate sex.		0.68

* Model fit—RMSEA = 0.05 (90%CI = 0.04,0.07), CFI = 0.98, TLI = 0.96, and SRMR = 0.03; standardized coefficients; there are 3 single-item measures not included: *Men should be able to freely express their emotions through crying, Men should protect family members, especially women and girls,* and *Men should respect a woman's decision if they say no to sex*.

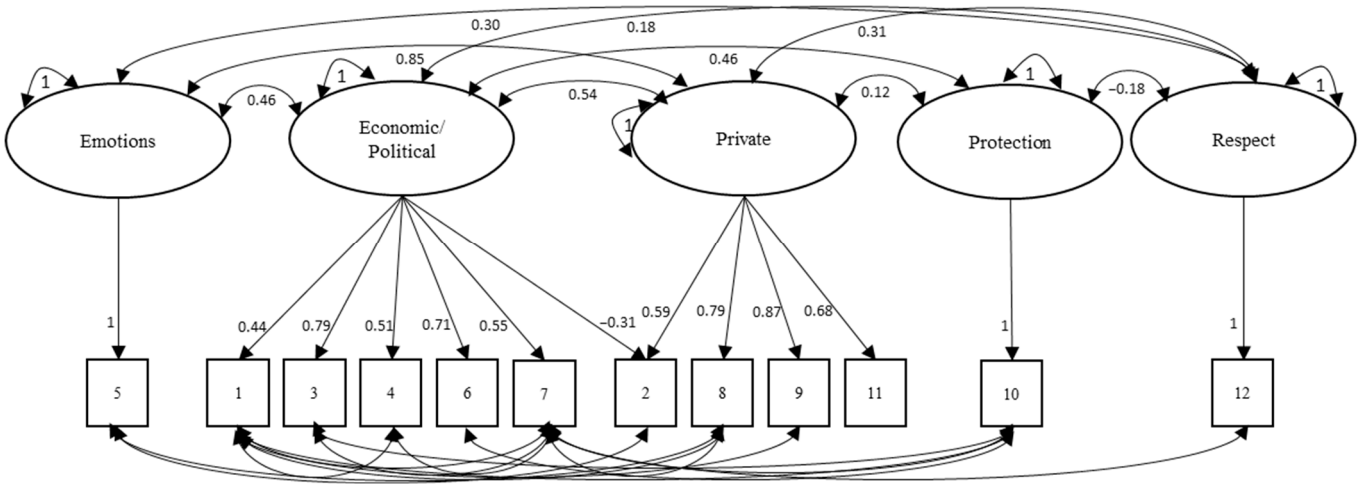


Figure 1. Final exploratory factor analysis model of the restrictive masculinity items. Standardized values only. Only significant ($p \leq 0.05$) covariances are included. *RMSEA (90%CI)* = 0.05 (0.04, 0.07); *CFI* = 0.98, *TLI* = 0.96, and *SRMR* = 0.03.

In the latent regression model, eight variables were retained from the original variable set, and six variables were significantly associated with one or more restrictive masculinity constructs. With the exception of the item regarding respecting women's decisions to say no to sex, there were positive associations between identifying as a heterosexual cis-male and restrictive masculinity (p's = 0.029 to < 0.001), relatively to heterosexual cis-females (Table 3). Conversely, there were negative associations between identifying as any sexual/gender

minority and restrictive masculinity (p's = 0.009 to 0.003), with the exception of the item regarding showing emotions through crying. Illicit substance use was also positively associated with the economic/political and private latent constructs (p's = 0.002 to 0.003). There was a positive association between age and the respecting a women's decision to say no to sex score (p = 0.029), and first-generation status was negatively associated with the same item (p = 0.034). Student status was positively associated with the showing emotions through crying score (p = 0.047), while the GAD-7 scores were negatively associated with the item (p = 0.009).

Table 3. SEM model results to identify predictors of restrictive masculinity constructs after completing the forward selection process *.

		Economic/ Political (1)			Private (2)			Emotions			Protection			Respect		
Variable		**b**	**se**	***p***	**b**	**se**	***p***	**b**	**se**	***p***	**b**	**se**	***p***	**b**	**se**	***p***
Race	Asian	0.18	0.25	0.467	−0.06	0.23	0.796	0.03	0.21	0.886	−0.06	0.20	0.759	−0.14	0.21	0.507
	Black/African American	−0.02	0.22	0.941	−0.16	0.21	0.441	−0.06	0.18	0.75	0.13	0.18	0.469	0.01	0.19	0.977
	White	−0.26	0.21	0.224	−0.39	0.22	0.055	−0.17	0.18	0.328	−0.07	0.17	0.686	−0.06	0.18	0.763
	Any Other	−0.12	0.23	0.604	−0.08	0.23	0.73	0.03	0.19	0.889	0.04	0.18	0.818	−0.04	0.20	0.86
GAD-7		−0.01	0.01	0.43	−0.01	0.01	0.277	**−0.02**	**0.01**	**0.009**	0.01	0.01	0.14	−0.01	0.01	0.458
Illicit substance use	Yes	**0.91**	**0.30**	**0.002**	**0.82**	**0.28**	**0.003**	0.31	0.25	0.215	−0.24	0.23	0.316	0.30	0.25	0.237
	No															
Student status		0.01	0.19	0.953	0.13	0.18	0.459	**0.31**	**0.16**	**0.047**	−0.12	0.15	0.404	0.28	0.16	0.075
First-generation student	Yes	0.09	0.11	0.393	−0.14	0.10	0.166	−0.14	0.09	0.12	−0.01	0.09	0.921	**−0.20**	**0.09**	**0.034**
	No															
Age		−0.03	0.09	0.75	−0.02	0.08	0.826	0.12	0.07	0.118	0.02	0.07	0.815	**0.17**	**0.08**	**0.029**
Sexual/gender status	Heterosexual cis-male	**0.76**	**0.15**	**<0.001**	**0.66**	**0.14**	**<0.001**	**0.57**	**0.12**	**<0.001**	**0.26**	**0.12**	**0.029**	0.02	0.12	0.884
	Sexual/gender minority	**−0.34**	**0.12**	**0.007**	**−0.30**	**0.12**	**0.009**	−0.02	0.10	0.838	**−0.29**	**0.10**	**0.003**	**−0.30**	**0.11**	**0.004**
	Heterosexual cis-female															
Neurodevelopmental condition	Yes	−0.05	0.14	0.697	−0.09	0.13	0.479	−0.01	0.11	0.898	−0.15	0.11	0.184	−0.01	0.12	0.927
	No															

* Unstandardized coefficients are shown; bold indicates statistical significance.

4. Discussion

This study has identified a method of measuring restrictive masculinity whose factor structure is similar to previously identified restrictive masculine normative behavior. Specifically, latent constructs defining the role of men in the political or economic space, and the role of men in private spaces at home, were clearly identified. The exclusion of additional survey items from the identified latent constructs, and the cross-loading of one item, may suggest a more complex normative phenomenon than originally discussed by the OECD, which may beneficially guide future survey development. Additionally, several individual characteristics and conditions may be associated with overall restrictive masculinity, as well as specific restrictive masculinity constructs, which provides insight into how knowledge of restrictive masculinity beliefs may be used to improve overall well-being.

4.1. Restrictive Masculinity Constructs

Although the application of the survey items described here in additional samples, with varying demographics, is needed, the findings suggest that the latent constructs of male dominance in political/economical spaces and in the home are generally held beliefs by a measurable proportion of the population, with potentially significant societal consequences. Belief that men should fulfill traditionally male roles contravenes recent diversity, equity, inclusion, and belonging programs that aim to create a more balance sex or gender ratio in the workplace. Even among professions with approximately equal sex or gender ratios, men are disproportionately represented in leadership positions (McKinsey & Company and LeanIn.org 2021), and the current survey may be useful at identifying individuals who are most likely to endorse and perpetuate such disparities. Similarly, belief in male dominance in the home may undermine efforts to empower women and assert control over their own lives and bodies. Recent political efforts in the US to reverse earned rights to access abortion and contraception (Brindis et al. 2024) are real-world embodiments of restrictive masculine ideals.

Items that focused on the expression of feelings, protection of family members, and respect for a woman's decision regarding sex did not clearly align with the identified latent constructs, although, because an acceptable model fit was achieved with their inclusion, these items are still likely important in better understanding and measuring restrictive masculinity. Indeed, these aspects may require further development to better understand how such notions fit within the restrictive masculinity framework. Based on previous research, items regarding the expression of feelings may be expanded to include expected internalizing and externalizing behaviors (Berke et al. 2018). Protection of family members may be one of several items that could focus on what men should be expected to do around the home (Warner et al. 2022), rather than simply the absence of traditionally feminine activities, and the relationship between masculinity and sex may be further defined to include explicit mentions of sexual assault and rape (Vechiu 2019).

4.2. Sex and Gender Status

The preliminary findings suggest that sex and gender status (SGS) are associated with restrictive masculinity norms, and the relationship between SGS and the concept of restrictive masculinity is likely complex and may be deeply rooted in societal norms and expectations. Similar to other masculine concepts (Jewkes et al. 2015; Connell and Messerschmidt 2005), restrictive masculinity norms held by men may reinforce stereotypical behaviors, and men who do not conform to such behaviors may be systematically excluded and discriminated against. Men who experience social isolation due to differing ideologies may suffer heighted symptoms of mental illness and social pressure to change ideologies and conform to restrictive masculine expectations (McKenzie et al. 2018). The process may begin at young ages and early in the development process where social support is primarily being sought from parents and other family members, and behavior change may be largely unconscious (Iwamoto et al. 2018; Hunt and Antin 2019).

Further, preliminary results indicate negative associations between identifying as a sexual and/or gender minority and restrictive masculinity. Given that identifying as a sexual and/or gender minority (SGM) inherently challenges norms surrounding gender identity, gender expression, and sexual orientation, non-conformity is generally more accepted within the SGM community and goes against restrictive masculinity norms (Cederved et al. 2024; Anderson, 2020; Harris and Mahalik 2023). However, studies suggest SGM individuals often report feeling the need to embrace more rigid gender roles and uphold these ideals in an effort to remain safe, included, and accepted (Cederved et al. 2024; Anders et al. 2022). Yet, the SGM community is heterogenous, and restrictive masculinity norms vary

(Harris and Mahalik 2023). Among gay men in particular, higher adherence to masculinity norms has been associated with higher rates of internalized homophobia (Thepsourinthone et al. 2020), and sexual minority men have reported concealing, rejecting, or changing parts of themselves to reduce this dissonance between their identities (Parmenter et al. 2019).

4.3. Mental Health

Illicit substance use and anxiety symptoms were associated with restrictive masculinity. Illicit substance use, including amphetamine-type stimulants, cocaine, and hallucinogens, are higher in those who exhibit restrictive masculinity (von Zimmermann et al. 2024; Litherland et al. 2022), and substance use may be used to assert restrictive masculine norms (Jewkes et al. 2015). Men, in particular, may use substances as a way to demonstrate their masculine identity to their peers and others around them (Iwamoto et al. 2018). Alternatively, substance use may be a coping mechanism for symptoms of mental illness in those who hold restrictive masculine norms (Parent et al. 2019; Iwamoto et al. 2018). Restrictive masculinity often promotes norms that discourage emotional expression, vulnerability, and help-seeking behaviors (Barry et al. 2020; Iwamoto et al. 2011), and dominant masculine ideals prioritize aggression and emotional restraint, creating significant barriers to accessing mental health treatment and support (Jewkes et al. 2015; Connell and Messerschmidt 2005). Consequently, these norms can negatively impact psychological well-being, especially when combined with cultural factors that stigmatize vulnerability (Matud et al. 2019). Interestingly, past research more often associates depression symptoms with restrictive masculinity (Parent et al. 2019), which was not seen here, and the link between restrictive masculinity and anxiety may require further study.

4.4. Implications

Further validation work is required to determine if the factor structure of the restrictive masculinity questionnaire is consistent across demographic groups and different sociocultural settings. Future studies should incorporate longitudinal measurements to determine the temporal consistency of the questionnaire's factor structure, and the incorporation of qualitative methods within quantitative studies may allow for a richer understanding of how questionnaire items are being interpreted. If validity is confirmed, the questionnaire described here may serve as a tool to measure the extent of restrictive masculinity norms in the population and assess relationships with important health outcomes. While past research has largely focused on mental health, research on healthcare utilization, chronic disease management, and preventive care may also identify important targets for new program development. For example, men's health improves with a greater sense of belonging within the healthcare sector (Paivo Neto et al. 2020), and improved health messaging around routine healthcare, which incorporates knowledge of held restrictive masculinity norms, may help to create more positive healthcare environments for men and improve adherence to treatment protocols among women (Triulzi et al. 2022).

Knowledge of restrictive masculine beliefs at the population level can also guide efforts that directly address the inherently harmful nature of restrictive masculinity, with resources being placed in communities with the higher need. Social support networks and educational programs that challenge strict gender norms can empower both men and women (OECD 2021), and educational efforts targeting younger men can help reshape attitudes toward masculinity by increasing self-awareness and emotional expression, which may prevent rumination on negative interactions and increase engagement with positive online discourse (Parent et al. 2019). Additionally, environments must be created to encourage healthier expressions of masculinity. Men must be able to challenge traditional gender roles and feel confident enough to do so, ideally through strong parental, familial,

and social support. Programs that provide education on emotional health and the dangers of restrictive masculinity can inspire men to seek help and support from their peers and communities, which can decrease symptoms of mental illness and suicide ideation (Barry et al. 2020). Community efforts are also needed to reinforce individual interventions to reduce the perceived stigma associated with not participating in restrictive masculinity normative behaviors, which will demonstrate societal acceptance of non-traditional views of masculinity (Jewkes et al. 2015; Heilman et al. 2017).

4.5. Limitations

There are several limitations of this study to consider. The sample consisted of students at a single private university and was unlikely to be representative of the target population, which limits the generalizability of the findings. Also, heterosexual cis-males were underrepresented in the sample (19.8%), and additional recruitment efforts are needed to ensure equitable representation across SGS categories. These may include engagement with groups with high heterosexual cis-male representation, such as male sports teams or fraternities, or digital targeting of males on platforms with a higher proportion of male users, such as Twitter/X or LinkedIn (Statista 2024). Recruitment efforts are also needed to better include perspectives from neurodiverse and behaviorally diverse populations.

Further, this is the first time this tool has been tested. The factor structure described here may not be transferable to other population sub-groups. Additional formative research, whether through engagement with subject-matter experts or conducting focus groups with different population sub-groups, is needed to determine if additional items are needed since several single items did not load onto either of the latent constructs. Responses may underestimate the prevalence of restrictive masculinity due to social desirability bias, and similarly, other self-reported mental health and substance use outcomes may be underestimated due to social desirability bias. Past research suggests that the self-reported use of psychoactive substances and suicidal behaviors is underreported relative to in-depth clinical assessments or objective measures of use, such as hair samples. Future research should incorporate objective mental health and substance use markers to better validate self-reported measures (Janousch et al. 2024; Zheng et al. 2021). Due to the exploratory nature of the latent regression model, Type I error may be a concern, and the results should be interpreted with caution.

5. Conclusions

Restrictive masculinity may be measured using the 12-item questionnaire described here, which had a factor structure similar to that described in previous reports, although more development work may be needed. Identifying as a heterosexual cis-male was associated with higher restrictive masculinity scores, and several potential links with mental illness were also identified. Reversing norms and behaviors associated with restrictive masculinity may be important programmatic targets.

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