Development and Validation of the Patriarchal Beliefs Scale

Eunju Yoon, Kristen Adams, Ingrid Hogge, John P. Bruner, Shruti Surya, and Fred B. Bryant
Loyola University Chicago

The purpose of this research was to develop and validate a conceptually and psychometrically solid measure for patriarchal beliefs in samples of U.S. American adults from diverse demographic and geographic backgrounds. In Study 1, we identified 3 correlated factors of the Patriarchal Beliefs Scale (PBS) in data collected from the Internet ($N = 279$): *Institutional Power of Men*, *Inferiority of Women*, and *Gendered Domestic Roles*. In Study 2, data collected from the Internet ($N = 284$) supported both an oblique 3-factor structure and a bifactor structure of the PBS, through confirmatory factor analyses. Construct validity of the PBS was supported in relation to other gender-related measures. The PBS was correlated in expected directions with modern sexism, antifeminist attitudes, and egalitarian attitudes toward women. In Study 3, we examined measurement invariance across gender by using combined data from Study 1 and Study 2. All 3 factors of the oblique 3-factor model indicated measurement invariance, whereas the general factor represented in the bifactor model indicated nonequivalence. Mean differences in patriarchal beliefs were found for such demographic variables as gender, sexual orientation, education, and social class. Recommendations for using the PBS, as well as implications for research and practice, are discussed.

Keywords: patriarchal beliefs, gender hierarschy, scale development, scale validation, measurement invariance

In modern U.S. mainstream society, many people tend to view themselves to be progressive and egalitarian in gender relations; thus, patriarchy is often considered as a rather outdated system (Bolzendahl & Meyers, 2004; Kim, 2006). Accordingly, a small number of empirical studies on patriarchy published in the United States tend to focus on specific international, ethnic minority, or religious communities (Abu-Ras, 2007; Ahmad, Riaz, Barata, & Stewart, 2004; Knickmeyer, Levitt, & Horne, 2010; Sakalh, 2001). Although it has been variously defined, patriarchy generally is a historical and social system of male domination in gender relationships in which men, who are of a higher status, dominate women, who are of a lower status, both structurally and ideologically (Chesney-Lind, 2006; Gosselin, 2010; Hunnicutt, 2009; Millett, 1969). In other words, patriarchy is a hierarchical power structure of male domination and female subordination (Moghadam, 2004; Walby, 1989), and patriarchal beliefs are beliefs in this system. Patriarchal structures are internalized as patriarchal beliefs at an individual level. Patriarchal beliefs are developed through social learning and also serve to reinforce the patriarchal system by informing gendered behaviors and decision making.

In spite of increased equality for women as a group, patriarchal beliefs are so deeply engrained in daily lives and social systems that it is often difficult to tease them apart from our consciousness, behaviors, and engagement with others and our world (Kim, 2006). These obscure, pervasive, and potent beliefs can have grave implications by affecting the way our society is governed, how men and women are employed, and how gender role expectations are conveyed from an early age (Sugarman & Frankel, 1996).

In general, research has shown that individuals who are marginalized and oppressed are more likely to experience deleterious mental health outcomes (Smith, Chambers, & Bratini, 2009). Contrary to some other types of oppressive systems (e.g., racism, classism), in which family can become the strongest ally because of shared social identities (see Seaton, Yip, Morgan-Lopez, & Sellers, 2012), patriarchy perpetuates oppression within family systems, possibly further compromising women's mental health. Therefore, it is important to examine how patriarchy is interwoven throughout our societal functioning from the largest level (e.g., institutional power) down to the smallest level (e.g., family roles).

Nevertheless, there is a paucity of empirical literature on this important topic. Potential obstacles to research in this area could include a lack of clear theoretical grounding (Hunnicutt, 2009; Kandiyoti, 1988), misconceptions that patriarchy is obsolete in mainstream U.S. society (Kim, 2006), and a lack of psychometrically sound measures for patriarch beliefs. It is interesting that contrary to the dearth of empirical literature on patriarchal beliefs, research and measures for other gender related constructs, such as sexism, egalitarian sex roles, and attitudes toward women or feminism, are not a rarity. Men and masculinity researchers have also examined masculinity ideology, gender role strain, and gender

role conflict from a social constructionist perspective (O'Neil, 2008; Pleck, 1995; Pleck, Sonenstein, & Ku, 1993).

What conceptually differentiates patriarchal beliefs from other gender-related constructs is that patriarchal beliefs are about the foundational social system of gender hierarchy that underlies particular experiences or manifestations of gender inequality. From this root, other products of patriarchy stem (e.g., sexism, masculinity ideology; O'Neil, 2008). By originating from the same social system, these constructs may conceptually and empirically overlap with each other; nevertheless, each appears to have a different focus. For example, sexism addresses conscious or subconscious, as well as hostile or benevolent, manifestation of patriarchal beliefs through discriminatory attitudes and behaviors (Glick & Fiske, 2001; Hunnicutt, 2009). Conversely, sex role egalitarianism highlights responses to another individual independently of his or her sex (Beere, King, Beere, & King, 1984). Masculinity ideology refers to "beliefs about the importance of men adhering to culturally defined standards of male behavior" (Pleck, 1995, p. 19). Attempts to live up to or deviate from these standards may result in gender role strain (pressure, tension, constriction) and conflict (O'Neil, 2008; Pleck, 1995; Pleck et al., 1993).

Existing measures that appear to be closest to the Patriarchal Beliefs Scale (PBS) that we intended to develop in this research are the Sex-Role Egalitarianism Scale (SRES; Beere et al., 1984) and the Husband's Patriarchal Beliefs Scale (HPBS; Smith, 1990). The SRES addresses mostly microlevel beliefs in marital, parental, and interpersonal relationships and some mesolevel beliefs in employment and education; however, it does not cover systematic differences at a macrolevel. The five-item HPBS, an occasionally used measure for patriarchal beliefs, was designed to measure beliefs about the legitimacy of male power and authority in intimate relationships. The HPBS has contributed to understanding patriarchal beliefs in the family system, especially in intimate partner violence (Ahmad et al., 2004; Haj-Yahia, 2003, 2005; Sakalli, 2001). However, its utility is limited to a microsocial system (e.g., family, interpersonal relation).

Examining domestic and mesolevel gender-related attitudes are very important for counseling psychology in understanding relationship conflict, family dynamics, workplace inequality via greater domestic responsibilities for women, and self-efficacy (S. Kim, 2009). However, patriarchal beliefs at a macrolevel would better predict attitudes and behaviors that go beyond domestic, interpersonal, or work situations, such as voting behaviors, promotion/hiring decisions, and perceptions of women holding political and military power. Furthermore, measurement at a macrolevel has great potential to increase our understanding of the relationship between patriarchal beliefs at different levels of social systems (i.e., institutional vs. domestic). We are in a period of increased political and ideological divisiveness and individuals' endorsement of patriarchal beliefs may differ across systems (e.g., reject patriarchal beliefs at an institutional practice but endorse them in domestic roles or vice versa).

In addition, feminist researchers have highlighted the need to understand various gender-related topics, including intimate partner violence, women in urban planning, and empowerment, in relation to multiple levels of sociocultural forces (Walby, 1989). Thus, development of a patriarchal beliefs scale that encompasses micro-, meso-, and macrolevels of social systems would serve to

bridge the sociocultural theories (e.g., Feminist Model; see Bell & Naugle, 2008) with individual experiences in that patriarchal beliefs reflect the internalization of sociocultural forces at an individual level. To the best of our knowledge, however, no measure for patriarchal beliefs at a macrolevel exists, beyond micro- or mesolevels.

Given the inherent connection between patriarchal beliefs and aforementioned gender-related constructs, there may be many similarities in their practice and measurement. Nevertheless, researchers need to pay separate attention to patriarchal beliefs to move toward a more systematic understanding of gender inequality and oppression, beyond particular outcomes or observable phenomena, and facilitate more comprehensive efforts for systemic changes. Our literature review revealed conceptual bodies of work on patriarchal beliefs peppered throughout social sciences, particularly among the fields of gender and women's studies. However, we need to extend the dialogue and scientific rigor within the field of counseling psychology to better understand the implications of patriarchal beliefs in clients' lives and develop prevention and intervention strategies to protect against their negative ramifications.

Furthermore, U.S. society has grown increasingly diverse since the enactment of Immigration and Nationality Act in 1965, largely because of immigrants from various parts of the world. Many immigrants are from overtly patriarchal cultures, where patriarchy is presumed to maintain familial and social order and unity (Yoon, Jung, Lee, & Felix-Mora, 2012). In transitioning from an overtly patriarchal to a seemingly more gender egalitarian society, they may receive different messages regarding gender roles and relations across subsystems (e.g., home, work, ethnic community, mainstream society). Collision of different gender-related beliefs, combined with the pull of collectivistic versus individualistic values, may have significant implications for immigrants' mental health and family dynamics. An *agendered* research approach, by exclusively focusing on race and culture (e.g., ethnic identity, racial discrimination, acculturation, and enculturation), can miss the complexity of immigrants' experiences. For example, coping with patriarchal pressure can be especially challenging for women from collectivistic cultures for fear of stirring up familial and societal discord. As such, patriarchal beliefs may be particularly important in understanding recent immigrants' experiences in the junction of gender and culture (Yoon, Lee, Koo, & Yoo, 2010).

Present Research

The purpose of this research was to develop a conceptually and psychometrically solid measure for patriarchal beliefs. The relationship between research and measures is reciprocal in that they inform each other and facilitate each other's development (Ponterotto & Mallinckrodt, 2007). Thus, without a solid measure, little can be known about the role of patriarchal beliefs in mental health, family dynamics, organizational structure, vocational behaviors, political behaviors, and self-efficacy. Therefore, we developed the PBS that encompassed micro-, meso- (e.g., local politics, business, church, school), and macrolevels (e.g., corporation, military, federal politics) of social systems. The scale was developed in samples of U.S. American adults from diverse demographic and geographic backgrounds, hoping that the scale would be further

validated in diverse racial, cultural, and national groups in the future and used in cross-cultural as well as within-cultural research. The current research consists of three studies. In Study 1, we developed an initial pool of items and examined its factor structure through exploratory factor analyses (EFA). In Study 2, we conducted confirmatory factor analyses (CFA) to cross-validate the identified factor structure in a different sample. We also examined construct validity, as well as internal consistency. Finally, we tested measurement invariance across gender and mean differences by demographic variables in Study 3.

Study 1: Scale Development and EFA

We conducted an extensive literature review to develop initial items to measure patriarchal beliefs. Given the lack of counseling literature on patriarchy, extant literature in psychology, women's studies, and sociology was reviewed dating back to the 1970s. Feminist and sociology literature has outlined the power of relations between genders and their impact on both individuals and society at large (Belknap, 2007; Deutchman, 1998; MacKinnon, 1989; Messerschmidt, 1986; Millett, 1969). The following section summarizes our literature review situating patriarchal beliefs in micro-, meso-, and macrolevels of social systems.

Oftentimes, patriarchy is embedded within a family system, and differing levels of power affect the familial structure (Beechey, 1979). Inherent in the microlevel of patriarchy is the embodiment of traditional gender role expectations (Lim, 1997). Here, the primary worth of women is in reproduction and mothering (Hunnicutt, 2009), and they are expected to tend to the household (e.g., child rearing, cooking, and cleaning). Conversely, men's bread-winner status allows economic dominance to wield much of the power via financial means and decision-making abilities (Hunnicutt, 2009; Strauss & Smith, 1990). As such, women's obedience, respect, loyalty, dependency, sexual access, and sexual fidelity are prominent themes in the patriarchal ideology at the microlevel (Sanchez, 1997; Strauss & Smith, 1990). It is at this level that intimate partner violence, rape, sexual assault, and child abuse may become more prevalent, with men asserting their power and control over women and children (Crittenden & Wright, 2013). While this pattern may be the result of years of repetition, an unconscious pursuit, or familiarity and ease, it can have significant ramifications for any and all affected (Johnson, 2005; Stith, Smith, Penn, Ward, & Tritt, 2004).

Micro-, meso-, and macrolevels of patriarchy have symbiotic relations in that patriarchy in the family system is situated within the societal gender order (Blumberg, 1984; Martin, 2004). Patriarchal beliefs at societal levels are transmitted via the explicit and implicit messages that women should not occupy traditional positions of power because of their inequality with men or incompetence. The institution of patriarchy can be seen within the local community, the national government, the corporate world, and the way in which society socializes children (Clarricoates, 1981; Johnson, 2010). While much of the research done at the meso- and macrolevels has examined the presence of patriarchy in business or society in general, it is also important to examine its presence in religion, politics, and the military because these are also public arenas that can have a bearing on one's functioning (Parker & Reckdenwald, 2008). Based on this literature review, we generated an initial pool of items to measure patriarchal beliefs at different

levels of social systems and explored their factor structure in a sample of U.S. American adults.

Method

Development of initial pool of items. Five researchers participated in item development. The research team consisted of one faculty member and four graduate students in counseling psychology. The faculty member was a middle-aged Asian immigrant woman, two students were European American women, one student was an Asian American woman, the fourth student was a European American man, and all students were in their 20s. While reviewing the literature on patriarchy and gender relations, the research team had regular meetings to discuss readings, define patriarchy, and identify patriarchal beliefs. As a result, we decided to comprehend patriarchal beliefs across three levels of social systems: micro (e.g., family, domestic roles), meso (e.g., local politics, business, church, school), and macro (e.g., corporation, military, federal politics). First, each student member generated 25–30 items independently. Next, the research team reviewed all items together as a group. The items were categorized into micro-, meso-, and macrolevels to ensure that all levels of social systems were evenly reflected. We deleted redundant items and scrutinized each item for clarity of meaning, wording, and grammar, which resulted in 96 items.

Considering that the five members of the research team worked together for several months in the entire process of literature review and item development, there was a possibility of group-think, as well as blindness because of familiarity with the content. Accordingly, an extended research team of 14 graduate students in counseling psychology gathered twice to review the items. This team included both male and female, married and single, and domestic (African American, Asian American, European American) and international (Taiwanese, Turkish) students. Upon their feedback, several items were removed and other items were reworded for clarification, resulting in a total of 92 items for the initial PBS. These items tapped into beliefs in gender hierarchy at different levels of social systems, across politics, business, finance, religion, education, military, and domestic life.

Participants and procedure. A total of 279 adults residing in various regions in the United States participated in the study. The sample consisted of 66 men (23.7%), 211 women (75.6%), and 2 participants who did not specify either gender (.7%); ages ranged from 18 to 77 years ($M = 35.24$, $SD = 14.32$). For racial breakdown, 214 (76.7%) self-identified as European American, 18 (6.5%) as Asian or Pacific Islander, 16 (5.7%) as Latino/as, 14 (5.0%) as African Americans, and the remaining 17 (6.1%) as Native American, multiracial, or other. The majority of the participants reported being U.S.-born ($n = 246$, 88.2%). Regarding sexual orientation, 224 (80.3%) self-identified as heterosexual; 41 (14.7%) as gay, lesbian, or bisexual; and 9 (3.2%) as other. For relationship status, 145 (52%) were single, 89 (31.9%) were married, 24 (8.6%) were divorced/widowed, and 20 (7.2%) were partnered. Most participants ($n = 209$, 74.9%) reported being either a college graduate or having an advanced degree. Self-identified social class breakdown was as follows: 11 (3.9%) lower class, 75 (26.9%) lower-middle class, 126 (45.2%) middle class, 59 (21.1%) upper-middle class, and 5 (1.8%) upperclass. Participants were widely distributed across income levels: 39 (14.0%)

under $20,000, 55 (19.7%) between $20,000 and $40,000, 59 (21.1%) between $40,000 and $60,000, 66 (23.7%) between $60,000 and $100,000, and 56 (20.1%) above $100,000. The participants resided across the nation: 93 (33.3%) from the Northeast, 70 (25.1%) from the Midwest, 66 (23.7%) from the West, and 49 (17.6%) from the South.

Adult U.S. Americans were recruited from the general public by using a Web-based survey program of the SNAP 10, a software program that allows researchers to post survey materials that participants can complete electronically. After receiving institutional review board approval, we distributed an invitation with a link to access the survey. The invitation asked adults (18 years or older) residing in the United States to participate in a Web-survey study on beliefs in women's position and roles. Multiple mediums were used, including online community bulletin boards (e.g., psychology research sites, social and entertainment news sites), volunteer classifieds (e.g., Craigslist), social networking sites (e.g., Facebook), professional listservs (e.g., Asian American Psychological Association), and solicitation e-mails to family and friends. The survey questionnaires included a demographic questionnaire and the 92 items of the initial PBS. At the completion of the survey, an opportunity was offered to enter a raffle for one of six gift cards (two of $100 value and four of $50 value). A total of 303 participants responded to the online survey, and 24 participants were removed because of missing values (i.e., missing 20% or more responses) or noticeably dubious responses (e.g., "1" for all items). Therefore, a total of 279 data remained for analyses.

Measure. The initial version of the PBS consisted of 92 items that identified various patriarchal beliefs, 13 of which were reverse items. Respondents were instructed to indicate their level of agreement by using a 7-point Likert scale that ranged from 1 (*strongly disagree*) to 7 (*strongly agree*), with a higher score reflecting greater endorsement of patriarchal beliefs.

Results

We conducted an EFA on the 92 items to identify latent factors, with a goal of attaining a scale that is comprehensive in content yet brief in length. A principal-axis factor (PAF) analysis was conducted using an oblique rotation (i.e., promax). The small number of missing values (.4% of total responses with missing values per item ranging from 0% to 1.4%) was substituted with respective mean item values. The examination of the scree plot (Cattell, 1966) indicated the last substantial drop in eigenvalues after the fourth factor. A parallel analysis (Horn, 1965) with 1,000 simulated random data sets indicated that the actual eigenvalues of six factors were higher than the 95th percentile random eigenvalues. Thus, we repeated PAFs, after fixing the factor numbers to four, five, and six for an exploratory purpose (see Kahn, 2006).

It is interesting that all 13 reverse items loaded on one factor in these analyses, accounting for 3.74% of the total variance. However, there was no systematic difference in item content that distinguished this factor from the other factors. Given that the reverse items were written randomly without any systematic patterns, this factor was more likely to reflect a response set rather than item content. Also, the content of the reverse items were well represented by other nonreverse items; thus, we decided to exclude all 13 reverse items and reanalyze the data. The examination of the scree plot indicated a three-factor solution, while a parallel anal-

ysis suggested a four-factor solution. When the data were reanalyzed after fixing the factor numbers to three versus four, a three-factor solution yielded a better structure that was empirically clear and conceptually meaningful (i.e., interpretable).

Items were selected on the basis of the factor pattern matrix using the following criteria: (a) a factor loading of .60 or above on the factor and (b) cross-loadings on other factors of less than .40. This resulted in 18 items for Factor 1, 12 items for Factor 2, and 11 items for Factor 3. To make the number of items equivalent across factors, as well as to reduce the overall length of the scale, we removed six items from Factor 1 that tapped into similar content areas with other items but had lower loadings. For example, we selected a higher loading item, "At work, I'd have more confidence in a male boss than a female boss," over a lower loading item, "I would prefer to have a man as my boss." Even though the number of items for Factor 1 was reduced from 18 to 12, major institutional dimensions that were intended in scale development (e.g., national and local politics, corporation, company, financial institutions, religious institution, work) were well represented in Factor 1.

Last, we conducted a final PAF analysis on the set of 35 items to confirm that the three factors were replicated in this shortened scale. A three-factor solution accounted for 66.0% of the total variance. Loadings of the items on the respective factors all exceeded .60 except for one item which still indicated a substantial loading of .53, and no item was found to have a cross-loading exceeding .40. As a result, a total of 35 items were retained to obtain a scale of patriarchal beliefs which was brief in length yet comprehensive in content. Table 1 presents the three factors and their respective items, factor loadings, communality estimates, and item-total correlations.

Factor 1 (F1; 12 items) was labeled *Institutional Power of Men* and measures beliefs in male authority and leadership at macro- and mesolevels (e.g., national and local politics, corporation, company, financial institutions, religious institution, work). Factor 2 (F2; 12 items) was labeled *Inherent Inferiority of Women* and measures beliefs in female inferiority, subordinate status, and restriction or exclusion from diverse social roles (e.g., work, finance, certain jobs, education, types of community involvement, pay). Factor 3 (F3; 11 items) was labeled *Gendered Domestic Roles* and measures beliefs in male versus female roles in the family, basically men as a breadwinner and decision maker and women as a caretaker for children and housework. Overall, different levels of social systems are reflected in this factor structure. F1 contains only meso- and macrolevel items suggesting that leaders should be men. F2 contains mostly meso- and macrolevel items indicating that women should pipe down and know their place. F3 includes only microlevel items suggesting that women's place is in the home.

F1, F2, and F3 accounted for 50.8%, 8.8%, and 6.5% of the total variance, respectively. The three factors were strongly correlated to each other at the significance level of .05: F1 and F2, $r = .67$; F1 and F3, $r = .67$; and F2 and F3, $r = .57$. Table 2 presents descriptive statistics and normality information (i.e., mean, standard deviation, skewness, and kurtosis), as well as Cronbach's alphas (α ranged .94 to .97), for factor and total scale scores.

Table 1
Items, Factor Loadings, Communality Estimates, and Item-Total Correlations for Study 1

Item	F1	F2	F3	h^2	Item-total r
F1: Institutional Power of Men					
89. I am more comfortable with men running big corporations than women.	**.86**	.10	−.06	.79	.83
65. At work, I'd have more confidence in a male boss than a female boss.	**.84**	−.08	.05	.69	.75
71. I would feel more comfortable if a man was running the country's finances.	**.84**	.03	−.03	.71	.76
88. I would feel more secure with a male president running the country than a female one.	**.81**	−.01	−.03	.61	.72
72. It is important that men make the big decisions that will affect my country.	**.77**	.07	.05	.71	.78
42. Men rather than women should lead religious services.	**.72**	−.07	.13	.59	.70
76. Men should lead national politics.	**.72**	−.08	.08	.52	.65
68. A man should be the head of a company.	**.69**	.01	.09	.59	.71
43. I prefer to have men lead town hall meetings.	**.69**	.07	.13	.68	.78
80. Men would make for more competent CEOs of financial institutions.	**.67**	.19	−.00	.66	.75
62. Matters of local government are best left up to men.	**.66**	.18	.01	.63	.73
90. The powerful roles that men play on TV/movies reflect how society should run.	**.66**	.04	−.07	.41	.56
F2: Inherent Inferiority of Women					
50. Banks should not give credit to women.	−.11	**.89**	−.03	.66	.59
37. Women do not belong in the workforce.	−.00	**.88**	−.08	.71	.62
57. Women should be paid less than a man for doing the same job.	−.01	**.83**	.00	.68	.65
55. A woman's place in the community should be mostly through volunteer work.	.13	**.76**	−.00	.72	.70
38. Women's careers should be limited to traditional female jobs.	.17	**.73**	−.18	.57	.56
51. Women are less able than men to manage money.	.12	**.71**	−.02	.62	.65
10. It is acceptable for a man to physically reprimand his wife.	−.23	**.70**	.22	.49	.51
56. Male work colleagues should have more of a say in the work place.	.16	**.67**	.03	.64	.69
54. Police should not intervene in domestic disputes between a husband and his wife.	−.03	**.64**	.10	.46	.57
45. Girls have less use for formal education than boys.	.20	**.64**	−.04	.57	.66
40. Men are inherently smarter than women.	.24	**.61**	.07	.70	.75
12. A man has the right to have sex with his wife even if she may not want to.	−.11	**.53**	.25	.40	.55
F3: Gendered Domestic Roles					
4. Cleaning is mostly a woman's job.	−.08	.11	**.84**	.72	.87
6. A man should be the one to discipline the children.	.01	−.06	**.82**	.64	.74
3. Cooking is mostly a woman's job.	−.09	.06	**.82**	.64	.81
9. A man should be the breadwinner.	.20	−.20	**.80**	.71	.79
5. A woman should be the one who does most of the child rearing.	−.00	−.02	**.79**	.60	.70
1. A woman should be the one to do the housework.	−.02	.07	**.77**	.63	.67
11. A man should control the household finances.	−.03	.13	**.75**	.66	.74
8. A man should make the rules of the house.	−.09	.19	**.75**	.65	.81
15. Women should be more responsible for domestic chores than men.	.14	.12	**.70**	.77	.85
7. A man is the head of the household.	.16	−.06	**.68**	.57	.75
16. A woman should be the primary caretaker for children.	.39	−.20	**.62**	.64	.72

Note. $N = 279$. h^2 = communality estimate. Boldface indicates factor loadings for each identified factor.

Study 2: CFA and Construct Validity

We further examined the three-factor structure of the PBS via CFAs in a different sample of U.S. American adults. There are two alternative approaches to represent the structure of a measure that is hypothesized to include a general factor comprised of several highly related dimensions: a second-order model and a bifactor model (Chen, West, & Sousa, 2006; Reise, Moore, & Haviland, 2010). The two models differ in representation of general traits and conceptualization of multidimensionality. A second-order model suggests that first-order factors reflect both general and dimension specific traits. The second-order factor, in turn, represents general traits, a shared latent construct across dimensions. Thus, general traits are indirectly (vs. directly) represented in item scores via first-order factors. Conversely, a bifactor model depicts direct effects of a general factor on each item, representing a shared latent construct across all items, as well as unique variances in specific dimensions above and beyond the general factor. By modeling each item score as caused by both a general factor and a specific dimension, a bifactor model assumes that the relations among a general factor and specific factors are independent of each other. Accordingly, conceptualization of multidimensionality in the two approaches differs in that specific dimensions represented in a bifactor model are analogous to disturbances in the second-order model (Chen et al., 2006; Reise et al., 2010).

For the purpose of this study, we were interested in using both factor scores and total scale scores of the PBS. Thus, we tested both a second-order model and a bifactor model as complementary rather than competing models to each other. A second-order model better supports using factor scores as a representation of specific dimensions of patriarchal beliefs, given that first-order factors reflect general as well as dimension specific traits. Conversely, a bifactor model better supports using total scale scores because the effect of a general factor is directly represented in each item score.

Table 2
Descriptive Statistics, Cronbach's Alphas, and Intercorrelations

Variable	1	2	3	4	5	6	7
1. F1: Institutional Power of Men	1						
2. F2: Inherent Inferiority of Women	.54**	1					
3. F3: Gendered Domestic Roles	.74**	.64**	1				
4. Composite score for F1, F2, and F3	.90**	.78**	.92**	1			
5. Modern sexism	.49**	.51**	.49**	.56**	1		
6. Antifeminist attitudes	.70**	.66**	.78**	.82**	.62**	1	
7. Egalitarian attitudes toward women	−.59**	−.56**	−.69**	−.71**	−.54**	−.81**	1
Study 1 (N = 279)							
M	1.95	1.33	2.17	1.81			
SD	1.16	.69	1.26	.91			
Skewness	1.47	3.25	1.12	1.59			
Kurtosis	1.72	11.94	.63	2.63			
Cronbach's alpha	.95	.94	.95	.97			
Study 2 (N = 284)							
M	2.25	1.35	1.99	1.86	2.67	2.45	2.19
SD	1.28	.77	1.31	.98	.99	.90	.39
Skewness	1.02	3.59	1.47	1.59	.60	1.00	−.73
Kurtosis	.36	15.91	1.54	2.73	.75	.71	.11
Cronbach's alpha	.97	.95	.96	.97	.80	.87	.76
Study 3							
Male (n = 135)							
M	2.62	1.59	2.62	2.27			
SD	1.36	.84	1.40	1.06			
Skewness	.65	1.98	.58	.83			
Kurtosis	−.47	3.65	−.67	.12			
Cronbach's alpha	.96	.93	.95	.97			
Female (n = 423)							
M	1.94	1.27	1.92	1.71			
SD	1.14	.68	1.21	.87			
Skewness	1.48	4.36	1.60	1.99			
Kurtosis	1.91	23.34	2.35	4.99			
Cronbach's alpha	.96	.96	.95	.97			
Combined (N = 563)							
M	2.10	1.34	2.08	1.84			
SD	1.23	.73	1.29	.95			
Skewness	1.23	3.46	1.28	1.59			
Kurtosis	.89	14.48	1.03	2.71			
Cronbach's alpha	.96	.95	.95	.97			

Note. Intercorrelations are from Study 2.
** *p* < .01.

Based on the results of the EFAs in Study 1, we first tested the correlated three-factor structure of the PBS. This model is empirically equivalent (i.e., same χ^2 and *df*) to a model with one second-order and three first-order factors (see Kline, 2011). We tested two alternative models to rule out the possibility that (a) the 35 items of the PBS reflected only one overarching latent construct of patriarchal beliefs (single-factor model) or (b) the three factors of the PBS were completely unrelated to each other (orthogonal three-factor model). Finally, we tested a bifactor model in which all 35 items were loaded on a general factor of patriarchal beliefs as well as one of the three specific factors.

We also examined construct validity of the PBS in relation to other gender-related measures (i.e., modern sexism, antifeminist attitudes, and egalitarian attitudes toward women). Considering that these gender related attitudes stem from the same root of patriarchy (see O'Neil, 2008), we hypothesized that they would have moderately to highly positive correlations with (a) modern sexism (i.e., covert and subtle sexism) and (b) antifeminist attitudes, versus a moderately to highly negative correlation with (c) egalitarian attitudes toward women. Also, given that antifeminist attitudes and egalitarian attitudes toward women, as measured in this study, were mostly about microlevel attitudes (e.g., family, interpersonal relation, women specific characteristics), as opposed to modern sexism that measured perception of general societal climate, we expected that the two variables would indicate especially strong relations to F3, *Gendered Domestic Roles*. Cohen's (1992) criteria were used to decide the strengths of the relations between the PBS and the other variables: (a) *r*s larger than .5 indicate large effect sizes; (b) *r*s around .3 indicate medium effect sizes; and (c) *r*s around .1 indicate small effect sizes. Reliability was also estimated for factor and total scale scores.

Method

Participants and procedure. A total of 284 adults residing in various regions in the United States participated in the study. The sample consisted of 69 men (24.3%), 212 women (74.6%), and 3 participants who did not specify either gender (1.1%); ages ranged from 18 to 70 years ($M = 32.70$, $SD = 12.63$). As for racial break-down, 196 (69.0%) self-identified as European American, 35 (12.3%) as African Americans, 18 (6.3%) as Asian or Pacific Islander, 14 (4.9%) as Latino/as, and the remaining 19 (6.7%) as Native American, multiracial, or other. The majority of the participants reported being U.S.-born ($n = 250$, 88.0%). Regarding sexual orientation, 219 (77.1%) self-identified as heterosexual, 56 (19.7%) as gay, lesbian, or bisexual, and 7 (2.5%) as other. As for relationship status, 170 (59.9%) were single, 53 (18.7%) were married, 38 (13.4%) were partnered, and 18 (6.3%) were divorced/widowed. The majority of participants ($n = 196$, 69.0%) reported being either a college graduate or having an advanced degree. Self-identified social class break-down was as follows: 34 (12.0%) lower class, 76 (26.8%) lower-middle class, 125 (44.0%) middle class, 43 (15.1%) upper-middle class, and 3 (1.1%) upperclass. Participants were diversely represented across income levels: 68 (23.9%) under $20,000, 55 (19.4%) between $20,000 and $40,000, 59 (20.8%) between $40,000 and $60,000, 59 (20.8%) between $60,000 and $100,000, and 38 (13.4%) above $100,000. The participants resided across the nation: 105 (37.0%) from the Northeast, 76 (26.8%) from the Midwest, 54 (19.0%) from the West, and 48 (16.9%) from the South.

Adult U.S. Americans were recruited from the general public by using the same Web-based survey methods as Study 1. The survey questionnaires included a demographic questionnaire, the shortened 35-item PBS, Modern Sexism Scale (Swim, Aikin, Hall, & Hunter, 1995), Attitudes Toward Feminism Scale (Smith, Ferree, & Miller, 1975), and Attitudes Toward Women Scale (Spence, Helmreich, & Stapp, 1973). A total of 284 usable data were obtained from the initial 302 respondents, after removing 18 data because of missing values (i.e., missing 20% or more for any scale) or noticeably dubious responses (e.g., "1" for all items).

Measures.

PBS. The PBS consists of three factors that measure patriarchal beliefs: F1 (12 items), *Institutional Power of Men*; F2 (12 items), *Inherent Inferiority of Women*; and F3 (11 items), *Gendered Domestic Roles*. The total 35 items are rated on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with a higher score indicating greater endorsement of patriarchal beliefs.

Modern Sexism Scale (MS). The MS (Swim et al., 1995) measures covert and subtle, as opposed to overt and blatant, forms of sexism. The total eight items are rated on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with a higher score reflecting greater sexism. Sample items include, "Discrimination against women is no longer a problem in the United States" and "It is rare to see women treated in a sexist manner on TV." The initial scale development study by Swim et al. (1995) revealed that the MS had distinct predictability of sexist behaviors from old-fashioned sexism as measured by Attitudes Toward Women Scale (Spence et al., 1973). Within a sample of college students, Swim et al. (1995) reported Cronbach's alpha of .85. The alpha was .80 in the current sample.

Attitudes Toward Feminism Scale (FEM). The FEM (Smith et al., 1975) measures feminist attitudes as to perceptions of prejudice, sexism, and authoritarian attitudes toward women (Byrne, Felker, Vacha-Hasse, & Rickard, 2011). The total 20 items are rated on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with a lower score indicating greater feminist attitudes while a higher score reflecting antifeminist attitudes. Sample items include, "Women who join the Women's Movement are typically frustrated and unattractive people who feel they lose out by the current rules of society" and "Whether or not they realize it, most women have been exploited by men (reverse)." The scale development study (Smith et al., 1975) demonstrated construct validity of the FEM through its ability to distinguish two ideologically opposed groups of women. The FEM was also negatively associated with endorsement of the women's movement (Singleton & Christiansen, 1977). The Cronbach's alpha for the current sample was .87.

Attitudes Toward Women Scale (AWS). The 15-item short form (Spence et al., 1973) of the original 55-item scale of the AWS was used to measure egalitarian versus traditional attitudes toward women. Attitudes toward women are rated on 4-point Likert scale ranging from 1 (*disagree strongly*) to 4 (*agree strongly*), with a higher score indicating more egalitarian and liberal attitudes and a lower score reflecting more traditional attitudes. Sample items include, "Economic and social freedom is worth far more to women than acceptance of the ideal of femininity which has been set up by men" and "Women should worry less about their rights and more about becoming good wives and mothers (reverse)." Swim and Cohen (1997) further distinguished the AWS, as a measure of overt and blatant (i.e., intentional, visible, and unambiguous) sexism, from the MS (Swim et al., 1995), a measure of covert and subtle sexism, via CFAs and correlations with other psychological measures (e.g., affective reactions to different types of women and men, perceptions of sexual harassment). Within a sample of college students, the short form indicated a high correlation ($r = .91$) with the original 55-item version and also yielded a Cronbach's alpha of .89 (Spence & Helmreich, 1972). The alpha for the current sample was .76.

Results

CFAs. We conducted CFAs by using the maximum likelihood estimation method in the LISREL program (Version 8.80; Jöreskog & Sörbom, 2006). The small number of missing values (.5% of total responses with missing values per item ranging from 0% to 2.1%) were imputed by respective mean item values. We used the multiple imputation method via expectation-maximization likelihood (EM) algorithm in the PRELIS of the LISREL program.

The likelihood of non-normal distribution of item scores on 7-point Likert scales was of concern. Non-normality typically underestimates the overall model fit and the size of the SEs for model parameters (Satorra & Bentler, 1994). Thus, we analyzed asymptotic covariance matrices with Satorra-Bentler scaled (SBS) χ^2 statistic that adjusted for non-normality. Three primary fit indices were used to test a model fit: Comparative Fit Index (CFI; best if close to .95 or greater); root-mean-square error of approximation (RMSEA; best if close to .06 or less, acceptable if close to .08 or less); and standardized root-mean-square residual (SRMR; best if close to .08 or less, acceptable if close to .10 or less; see Hu

& Bentler, 1999; Vandenberg & Lance, 2000). We also reported the Bayesian information criterion (BIC) that takes model complexity into account; comparatively better fitting models indicate lower BIC values (Kang, Cohen, & Sung, 2009).

For the correlated three-factor model, all items highly loaded on the intended latent factors at the significance level of .05; standardized factor loadings ranged from .73 to .93 for F1, from .72 to .89 for F2, and from .75 to .90 for F3. The three latent factors were strongly correlated with each other: F1 and F2, $r = .58$; F1 and F3, $r = .75$; and F2 and F3, $r = .67$. The model also indicated good fit indices: SBS $\chi^2(557) = 1,279.24$, CFI = .99, SRMR = .067, and RMSEA = .068. As shown in Table 3, comparison of fit indices with the two alternative models further supported the correlated three-factor model.[1]

For the bifactor model, all items significantly loaded on the general factor of patriarchal beliefs at the significance level of .05; standardized factor loadings ranged from .38 to .94. F1 items tended to have the highest loadings (range = .70–.94) on the general factor, followed by F3 items (range = .58–.72) and F2 items (range = .38–.64). The χ^2 difference between the bifactor model and the oblique three-factor model was statistically significant, and comparison of BIC values also favored the bifactor model. Nevertheless, both models indicated strong fit indices in general: (a) bifactor model, CFI = .99, SRMR = .083, RMSEA = .061; and (b) oblique three-factor model, CFI = .99, SRMR = .067, RMSEA = .068. Therefore, the results supported both an oblique three-factor structure and a bifactor structure, in support of using factor and total scale scores, respectively.

Construct validity. As hypothesized, the PBS total and factor scores were all positively related to modern sexism and antifeminist attitudes (r range = .49 to .82), and were all negatively associated with egalitarian attitudes toward women (r range = −.54 to −.81; Table 2). As expected, the FEM and the AWS indicated especially strong correlations with F3. Shared variances with the PBS ranged from 24.0% to 31.4% for the MS, from 43.6% to 60.8% for the FEM, and from 31.4 to 50.4 for the AWS. In support of construct validity, the PBS revealed an apparent overlap with other theoretically relevant constructs (especially between F3 and the FEM and the AWS); however, it also indicated substantial amount of nonshared variances that differentiated the PBS from the other constructs.

Reliability. The internal consistency estimates for the PBS total and factor scores were all excellent. The Cronbach's alphas for the total scale, F1, F2, and F3 were .97, .97, .95, and .96, respectively (Table 2).

Study 3: Measurement Invariance and Demographic Comparison

Establishing measurement invariance is important to enable valid cross-group comparisons or compile data across groups (Vandenberg & Lance, 2000). Considering that gender is inherently related to the construct of interest that the PBS aims to measure, we examined measurement invariance across gender. We also explored possible mean differences in patriarchal beliefs by demographic variables. We combined the data from Study 1 and Study 2 to obtain a large enough sample for multigroup CFAs, as well as sizable subgroups for mean comparisons.

Method

Participants and measures. The combined sample produced a total of 563 participants, whose responses to the 35 PBS items were analyzed.

Analytic strategy for measurement invariance. Measurement invariance across gender was examined in three steps testing configural, metric, and scalar invariance (see Abrams et al., 2013; Carr et al., 2014; Vandenberg & Lance, 2000). As the first step of invariance tests, a test of configural invariance evaluates whether factor structures (i.e., same factors and zero vs. nonzero factor loadings) are equivalent across groups. Establishment of configural invariance suggests that items reflect the same latent variables across groups. Further invariance tests can proceed only after omnibus configural invariance is established. Next, a test of metric invariance examines whether factor loadings are equivalent across groups. Establishment of metric invariance suggests that items are interpreted similarly across groups and that predictive relationships (e.g., relationship between patriarchal beliefs and self-efficacy) are comparable across groups. After metric invariance is established, a test of scalar invariance can continue. A test of scalar invariance evaluates whether item intercepts are equivalent across groups. Establishment of scalar invariance suggests that similar item-responses across groups reflect equivalent scores on the corresponding latent factor, which indicates comparability of observed scores and thus enables valid mean comparison across groups.

To assess measurement invariance, we examined fit differences between nested models (i.e., $\Delta\chi^2$, ΔCFI), in addition to overall model fit indices.[1] Although researchers have used various fit indices to assess an overall model fit, they have exclusively relied on chi-square differences to determine equivalence between models. χ^2 tests are highly sensitive to even minor deviations and are susceptible to distortion by sample size, which can lead to excessive rejection of measurement invariance (Meade, Johnson, & Braddy, 2008; Vandenberg & Lance, 2000). Thus, Meade et al. (2008) recommended using alternative fit indices such as CFI changes (acceptable if .002 or less). If alternative fit indices were supportive of invariance in a sample greater than 200, Meade et al. (2008) recommended proceeding with further analyses, in spite of a significant χ^2 difference, because group differences are likely to be trivial in nature. Therefore, we used both χ^2 and CFI differences, in addition to overall fit indices, to determine measurement invariance.

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[1] Although ML χ^2 statistic is known to be robust to non-normality, the SBS χ^2 statistic provides an advantage over ML χ^2 by adjusting for non-normality that often occurs at item-level analyses. However, the difference in nested SBS χ^2 values does not correspond to a chi-square distribution (Satorra, 2000); thus, simply subtracting the nested SBS χ^2 values produces an invalid statistic for model comparison. Satorra and his colleagues have developed formulas to compute a model's scaling correction factor to get a χ^2 difference test for the SBS χ^2 (see Bryant & Satorra, 2012; Satorra, 2000; Satorra & Bentler, 2001, 2010). These tests, nevertheless, sometimes produce inadmissible negative values (Bryant & Satorra, 2012), and our tests following these formulas also produced some negative values. Therefore, although we reported fit indices based on SBS χ^2 statistic, we computed differences in ML χ^2 for the purpose of χ^2 difference testing.

Table 3
Summary of Model Fit Indices for Study 2

Model	SBS χ^2	df	CFI	SRMR	RMSEA [90% CI]	BIC	$\Delta\chi^2$ (df)
1. Bifactor model	1,082.38	525	.99	.083	.061 [.056, .066]	5,271.66	
2. Oblique three factors	1,279.24	557	.99	.067	.068 [.063, .073]	5,470.78	1 vs. 2 378.58 (32)***
3. Single factor	5,075.42.	560	.91	.13	.17 [.16, .17]	8,250.01	2 vs. 3 2786.30 (3)***
4. Orthogonal three factors	1,356.97	560	.98	.38	.07 [.07, .08]	5,831.08	2 vs. 4 375.89 (3)***

Note. SBS = Santorra-Bentler scaled; *df* = degrees of freedom; CFI = Comparative Fit Index; SRMR = standardized root-mean-square residual; RMSEA = root-mean-square error of approximation; CI = confidence interval; BIC = Bayesian information criterion. *N* = 284.
*** *p* < .001.

Results

Measurement invariance across gender. We first examined measurement invariance for the oblique three-factor model. First, a test of configural invariance examined whether factor structures were equivalent across gender. Separate CFAs on each group indicated that the oblique three-factor model fit the data well in both male and female groups (Table 4). Also, all items substantially loaded on the intended latent factors in both groups, at the significance level of .05. The ranges for standardized factor loadings were as follows: F1, .70 to .90 for male and .66 to .88 for female; F2, .54 to .87 for male and .71 to .88 for female; and F3, .73 to .85 for male and .74 to .90 for female. The three latent factors were also strongly correlated with each other in both groups: F1 and F2, *r* = .68 for male and *r* = .59 for female; F1 and F3, *r* = .76 for male and *r* = .69 for female; and F2 and F3, *r* = .63 for male and *r* = .64 for female.

Having established configural invariance, we next proceeded with tests of metric invariance. We used a model that specified no cross-group equality constraints as a baseline model. An omnibus test that constrained all factor loadings to be equal across gender yielded full metric invariance. As shown in Table 4, the model indicated an overall good fit, nonsignificant chi-square increase from the baseline model, $\Delta\chi^2(32) = 44.02$, *p* > .05, and minimal change in CFI value (< .001).

Last, given the support for full metric invariance, we proceeded with tests of scalar invariance. To test omnibus scalar invariance, we constrained all item intercept values to be equal across gender in addition to constraining factor loadings. Then, we compared the model with the omnibus metric invariance model in which only factor loadings were constrained (Table 4). Given a significant χ^2 difference, $\Delta\chi^2(35) = 82.86$, *p* < .001, in spite of minimal change in CFI values (< .001) and an appropriate overall model fit, we continued with factor-level tests of scalar invariance to identify the source(s) of invariance. All three factors indicated significant chi-square differences in spite of minimal changes in CFI values (< .001) and an appropriate overall model fit. Differences in item intercepts when holding the latent factor mean constant at zero reflected uniformly higher item means for males than females.

Nonequivalent results of scalar invariance tests can indicate either "systematic response bias (e.g., leniency)" between the groups or "expected group differences" (Vandenberg & Lance, 2000, p. 38). In the latter case, differences of item intercepts reflect true mean differences across gender rather than biases. Given previous research findings that oppressed groups tend to have higher awareness of the falsity of oppressive systems (see Yoon, Moulton, Jeremie-Brink, & Hansen, 2013), the current findings appeared to reflect true mean differences rather than differential item functioning. When we examined latent factor mean differences across gender, by fixing latent means at zero for males and freeing them for females, females indicated lower patriarchal beliefs relative to males across factors: F1, −0.75 (*SE* = .15, *p* < .01); F2, −0.32 (*SE* = .09, *p* < .05); and F3, −0.79 (*SE* = .15, *p* < .01).

Table 4
Measurement Invariance Tests Across Gender for Study 3

Model	SBS χ^2	df	CFI	SRMR	RMSEA [90% CI]	BIC	$\Delta\chi^2$ (df)	ΔCFI
Tests for oblique three-factor model								
1. Male	897.80	557	.98	.077	.068 [.059, .076]	4,852.99		
2. Female	1,289.49	557	.99	.058	.056 [.052, .060]	6,900.18		
3. Baseline model (no constraint)	2,221.62	1,114	.9871	.088	.060 [.056, .060]	1,1847.78		
4. Omnibus metric invariance	2,236.90	1,146	.9873	.060	.059 [.055, .062]	1,1689.55	3 vs. 4 44.02 (32)	<.001
5. Omnibus scalar invariance	2,346.71	1,181	.9864	.060	.060 [.056, .063]	12,132.13	4 vs. 5 82.86 (35)***	<.001
6. F1 scalar invariance	2,264.26	1,158	.9871	.060	.059 [.055, .062]	12,090.10	4 vs. 6 33.77 (12)***	<.001
7. F2 scalar invariance	2,277.05	1,158	.9873	.060	.060 [.055, .059]	12,097.91	4 vs. 7 41.58 (12)***	<.001
8. F3 scalar invariance	2,280.30	1,157	.9871	.060	.060 [.056, .063]	12,105.65	4 vs. 8 42.99 (11)***	<.001
Tests for bifactor model								
1. Male	736.06	525	.99	.072	.055 [.045, .064]	4,795.27		
2. Female	1,124.90	525	.99	.087	.052 [.048, .056]	6,704.63		

Note. SBS = Santorra-Bentler scaled; *df* = degrees of freedom; CFI = Comparative Fit Index; SRMR = standardized root-mean-square residual; RMSEA = root-mean-square error of approximation; CI = confidence interval. Male, *n* = 135; female, *n* = 423.
*** *p* < .001.

In summary, configural and metric invariance were established for the oblique three-factor model of the PBS. The findings for scalar invariance appeared to be because of true latent mean differences across gender rather than systematic response bias. Thus, these results provided provisional evidence of cross-gender measurement invariance, which enables meaningful cross-gender comparison and data compilation for factor scores.

Next, we explored measurement invariance for the bifactor model. A test of configural invariance examined whether factor structures were equivalent across gender. Separate CFAs on each group indicated that the bifactor model fit the data well in both male and female groups (Table 4). Also, all items significantly loaded on the general factor of patriarchal beliefs in both groups, at the significance level of .05. The ranges for standardized factor loadings on the general factor were as follows: F1 items, .67–.89 for male and .43&–.68 for female; F2 items, .37–.64 for male and .66–.89 for female; and F3 items, .51–.71 for male and .45–.66 for female. However, these loadings indicated systematic gender differences. Specifically, all F1 and F3 items except for two items revealed higher factor loadings for males, whereas all F2 items indicated higher loadings for females. Furthermore, the factor loadings on the unique dimensions of the three factors, which were orthogonal to the general factor, also revealed different patterns across gender (e.g., zero vs. nonzero factor loadings). For the male data, six items indicated zero factor loadings and were all from F1; for the female data, four items revealed zero factor loadings and

were all from F2. In addition, our test of omnibus metric invariance resulted in nonconvergence (analyses of bifactor models often encounter estimation difficulties; see Yang & Green, 2010). The inability of the LISREL program to find an admissible bifactor model that had equal factor loadings for males and females supported the conclusion that the bifactor model was not metric invariant with respect to gender. Therefore, cross-gender comparison or data compilation was not supported for total scale scores.

Mean differences by demographic variables. We explored possible mean differences in the three factor scores of the PBS by eight demographic variables (i.e., race, sexual orientation, nativity [U.S.- vs. foreign-born], relationship status, education, social class, income, and geographic region). We conducted a series of multivariate analyses of variance (MANOVAs) by using each demographic variable as an independent variable and F1, F2, and F3 scores as dependent variables. When significant multivariate effects were detected, we continued with univariate analyses of variance (ANOVAs), followed by Tukey's post hoc tests. Given the non-normality for F2 (skewness >2.00, kurtosis >7.00; see West, Finch, & Curran, 1995), we did logarithmic transformation for all three factor scores before proceeding with MANOVAs. To reduce Type I error rates of multiple tests, we used a rather conservative p value of .01. In addition, subgroups that did not reach a sample size of 20 were either excluded (e.g., Native Americans) or merged into an adjacent group (e.g., upperclass was combined with upper-middle class) depending on the nature of specific demographic variables. See Table 5 for subgroup

Table 5
Patriarchal Beliefs Scale Means and Standard Deviations by Demographic Variables

Variable	Level	M (SD)		
		F1	F2	F3
Gender	Male (n = 135)	2.62 (.10)	1.59 (.06)	.2.62 (.11)
	Female (n = 423)	1.94 (.06)	1.27 (.04)	1.92 (.06)
Race	European American (n = 410)	2.01 (.06)	1.28 (.04)	1.97 (.06)
	African American (n = 49)	2.49 (.18)	1.56 (.10)	2.52 (.18)
	Latino/a (n = 30)	2.16 (.23)	1.64 (.13)	2.25 (.23)
	Asian/Pacific Islander (n = 39)	2.71 (.21)	1.61 (.12)	2.56 (.210
Sexual orientation	Heterosexual (n = 443)	2.17 (.06)	1.35 (.03)	2.14 (.06)
	Lesbian, gay, bisexual (n = 97)	1.79 (.12)	1.28 (.07)	1.83 (.13)
Nativity	U.S.-born (n = 496)	2.06 (.06)	1.32 (.03)	2.04 (.06)
	Foreign-born (n = 66)	2.04 (.06)	1.52 (.09)	2.39 (.16)
Relationship status	Single (n = 315)	2.07 (.07)	1.40 (.04)	2.06 (.07)
	Married (n = 142)	2.10 (.10)	1.27 (.06)	2.12 (.11)
	Partnered (n = 58)	2.08 (.16)	1.27 (.10)	1.90 (.17)
	Divorced/widowed (n = 42)	2.31 (.19)	1.28 (.11)	2.39 (.20)
Education	High school or less (n = 155)	2.33 (.10)	1.54 (.06)	2.39 (.10)
	College (n = 243)	2.11 (.08)	1.33 (.05)	2.01 (.08)
	Advanced degree (n = 162)	1.86 (.10)	1.18 (.06)	1.90 (.10)
Social class	Lower class (n = 45)	2.27 (.18)	1.42 (.11)	2.23 (.19)
	Lower-middle class (n = 151)	2.43 (.10)	1.52 (.06)	2.29 (.11)
	Middle class (n = 251)	2.02 (.08)	1.27 (.05)	2.00 (.08)
	Upper-middle or upperclass (n = 110)	1.79 (.12)	1.24 (.07)	1.95 (.12)
Income	Under $20,000 ($n$ = 107)	2.26 (.12)	1.54 (.07)	2.31 (.13)
	$20,000–$40,000 (n = 110)	2.23 (.12)	1.37 (.07)	2.15 (.12)
	$40,000–$60,000 (n = 118)	2.11 (.11)	1.40 (.07)	2.06 (.12)
	$60,000–$100,000 (n = 125)	1.95 (.11)	1.19 (.07)	1.92 (.12)
	Over $100,000 ($n$ = 92)	2.01 (.13)	1.24 (.08)	1.98 (.14)
Region	West (n = 120)	2.49 (.11)	1.45 (.07)	2.33 (.12)
	Midwest (n = 146)	2.03 (.10)	1.28 (.06)	2.09 (.11)
	Northeast (n = 198)	2.01 (.09)	1.34 (.05)	2.01 (.09)
	South (n = 97)	1.94 (.12)	1.33 (.07)	1.88 (.13)

means and *SD*s.

Results indicated significantly higher endorsement of patriarchal beliefs for the following subgroups: (a) heterosexual individuals over lesbian, gay, or bisexual (LGB) participants in F1; (b) high school education or less over advanced degrees in F1 and F2; (c) high school education or less over college graduates in F2; (d) lower-middle class over upper or upper-middle class in F1 and F2; and (e) lower-middle class over middle class in F2. Parenthetically, additional mean differences were detected when a less stringent significance level of .05 was employed. The following subgroups indicated higher endorsement of patriarchal beliefs than their counterparts: (a) African Americans over European Americans in F2 and F3; (b) Asian Americans and Pacific Islanders over European Americans in F1 and F3; (c) heterosexual individuals over LGB participants in F3; (d) high school education or less over college graduates or advanced degrees in F3; (e) lower-middle class over middle class in F1; (f) income level under 20k over 60k–100k or above in F2; and (g) West over Northeast or South in F1. Correlation analyses revealed that age was not significantly related to patriarchal beliefs ($ps = -.02$ to .09) at the significance level of .01.

General Discussion

The purpose of this research was to develop a conceptually and psychometrically solid measure of patriarchal beliefs. EFAs suggested an oblique three-factor structure: F1-*Institutional Power of Men* (12 items), F2-*Inherent Inferiority of Women* (12 items), and F3-*Gendered Domestic Roles* (11 items). CFAs supported both an oblique three-factor structure and a bifactor structure, justifying the use of both factor and total scale scores, respectively. Consistent with the literature that highlighted multidimensionality of patriarchy, the PBS reflected patriarchal beliefs at micro-, meso-, and macrolevels of social systems, across politics, business, finance, religion, education, and domestic life (see Belknap, 2007; Clarricoates, 1981; Deutchman, 1998; Hartmann, 1976; MacKinnon, 1989; Messerschmidt, 1986; Millett, 1969; Parker & Reckdenwald, 2008). Construct validity of the PBS was further supported in relation to modern sexism, antifeminist attitudes, and egalitarian attitudes toward women. Both scale and factor scores indicated excellent internal consistency. Preliminary evidence indicated measurement invariance across gender for an oblique three-factor model, but not for a bifactor model. Therefore, male and female group comparison (e.g., mean, prediction) or data compilation is valid only for factor scores. We recommend using the total scale score only within separate gender groups.

As opposed to acceptable normality for F1 and F3, F2 indicated high skewness and kurtosis (skewness >2.00, kurtosis >7.00). F1-*Institutional Power of Men* and F3-*Gendered Domestic Roles* measure beliefs in gender hierarchy at meso- and macro- versus microlevels, respectively. Even though the underlying assumption for these beliefs is male domination and female subordination, this assumption is rather covert. In fact, certain individuals and cultures may presume that distinct gender roles and relational hierarchy are functional to keep familial and social order and unity. On the other hand, F2-*Inherent Inferiority of Women* measures explicit beliefs in female inferiority, subordinate status, and restriction or exclusion from diverse roles mostly at meso- and macrolevels. This difference in explicitness may have contributed to the positive

skewness of F2. However, this finding should be understood in consideration of the sample characteristics that highly educated European American women were overrepresented who volunteered to complete a survey about women's issues. Their response pattern may not apply to other racial, cultural, national, and/or gender groups. In fact, when F2 scores were analyzed separately for male versus female data, male data indicated acceptable normality, while female data revealed even higher non-normality.

Likewise, the relatively low range of factor mean scores (range $= 1.27–2.62$) drew our attention to possible floor effects. However, mean comparisons by demographic variables indicated significant differences at the level of .01, in four of nine demographic variables (i.e., gender, sexual orientation, education, and social class). When a less stringent significance level of .05 was used, additional mean differences were detected by race, income, and region. Therefore, it appears that the PBS was sensitive to group differences, in spite of the range restriction in the current samples, which suggests the utility of the PBS.

Individuals with female, European American, LGB, higher education, higher social class, and higher income identifications demonstrated lower endorsement of patriarchal beliefs compared with their counterparts. As found in studies on other types of oppression (e.g., racism), the oppressed (i.e., women and LGB individuals in the current research) appear to be more aware of the invalidity of oppressive systems (see Yoon et al., 2013). Also, higher SES may provide opportunities and resources to engage in consciousness raising as far as these individuals do not feel their privilege is threatened (see Freire, 1970).

Limitations

The findings of current studies should be understood in consideration of their limitations. First, although participants were recruited across the nation and from diverse demographic backgrounds, the present samples are not representative of the U.S. public in general. They overrepresented highly educated women who might be more interested in gender issues; thus, the current samples might represent a more gender egalitarian and liberal segment of the general population. Second, although a Web-survey helps diminish geographic limits in data collection, reduce human errors in data entry, and increase participants' sense of anonymity, it also involves sampling biases because of limited accessibility to Internet and low response rate (Kraut et al., 2004; Suarez-Balcazar, Balcazar, & Taylor-Ritzler, 2009). Also, some recruitment methods (e.g., recruiting from psychological research sites and professional listservs) may have affected an overrepresentation of highly educated individuals.

Third, in spite of their widespread use in psychology research, the FEM and the AWS are rather outdated and certain items may be inappropriate to represent gender related attitudes these days (e.g., "It is ridiculous for a woman to run a locomotive and for a man to darn socks"). Nevertheless, many of the attitudes measured by these scales appear to be still relevant to the modern society, in spite of their decrease in explicitness. Fourth, although the research team had some diversity in terms of age, gender, race, relationship status, and nativity, the members were rather homogenous in terms of shared experiences and ideas as highly educated individuals in the same academic program in the United States. Therefore, the initial pool of

items may reflect such biases. Fifth, we could not examine measurement invariance beyond gender because of small subgroup sizes for multigroup CFAs. Considering the close connection between gender and culture (Yoon et al., 2010), it is important to examine measurement invariance across racial groups in future research. Last, this research reflected a heteronormative framework in family systems (e.g., heterosexual coupling) by attempting to understand patriarchal beliefs at a microlevel.

Implications for Research and Practice

As shown in the positively skewed tendency of the PBS (especially F2), the current participants endorsed relatively low levels of patriarchal beliefs. However, they are likely to represent only a small segment of the world population. Hence, the PBS needs to be further validated in diverse racial, cultural, and national groups to enable within- (i.e., within cultural) and between- (i.e., cross-cultural) group studies. In conducting cross-cultural validation studies, researchers need to go beyond examination of measurement invariance because, from the outset, the current PBS may be omitting important factors or items to certain cultures (see Heppner, 2011). Considering the close connection between gender and culture, different cultures may conceptualize and express patriarchal beliefs in different ways. For example, although female sexual subordination may be a common theme across many cultures, it may be expressed as sexual objectification in one culture but sexual restriction in another culture. These cultural variations may be reflected in factor structures, item loadings, and/or additional or substitute items to represent patriarchal beliefs. In fact, patriarchy research has sometimes been criticized for oversimplification and a false universality regarding the social position and experiences of men and women (Connell, 1990). Although gender hierarchy is at the core of patriarchy, patriarchy is not a monolithic construct (Hunnicutt, 2009). Patriarchal forces may intersect with other social identities (e.g., age, race, class, and culture) and take various shapes. Therefore, future research may illuminate these variations at the individual, cultural, and historical levels.

Even though we have conceptually distinguished patriarchal beliefs from other gender related constructs (e.g., sexism, sex role egalitarianism, masculine ideology, gender role strain, and conflicts), patriarchal beliefs revealed relatively high correlations with modern sexism, antifeminist attitudes, and egalitarian attitudes toward women. With a lack of measures for patriarchal beliefs, conceptual and empirical distinction from other relevant constructs has been somewhat obscure. Compared with the PBS that focuses on the systematic gender hierarchy across micro-, meso-, and macrolevels, other scales are less intentional in measuring this systematic hierarchy by having different focuses. Future research may further discern conceptual and empirical distinctions between patriarchal beliefs and other gender related constructs, and identify where patriarchal beliefs are positioned in the constellation of relevant constructs.

As to the question of whether patriarchy can ever be functional by maintaining social order and unity, future research needs to examine the association between patriarchal beliefs and mental health, especially for women, because experiences of patriarchy may differ by gender (i.e., men as the beneficiary supposedly vs. women as the oppressed; Parker & Reckden-

wald, 2008). The explicit exclusionary nature of the F2 items (i.e., women should not . . .) may be more proximally related to psychological outcomes such as self-esteem. Parenthetically, it is this "should not/cannot" dimension of patriarchal beliefs that is not well captured by the SRES, which evaluates egalitarian attitudes rather than specific exclusionary/degrading attitudes (see Beere et al., 1984).

In addition, given that patriarchal beliefs are about social systems, it is important to contextualize research on this topic. For example, immigrants to the United States from highly patriarchal cultures navigate traditional family systems, ethnic communities, and seemingly more gender egalitarian mainstream society, simultaneously (Yoon et al., 2010). Understanding how they experience conflicts and compromises across subsystems would be highly informative to clinical practice. The high levels of intergenerational conflicts in female Hmong and Asian college students from immigrant families suggest difficulties with such endeavors (Lee, Jung, Su, Tran, & Bahrassa, 2009; Lee, Su, & Yoshida, 2005).

Collectivism/individualism may add another layer of complexity to understanding patriarchal beliefs, in that individuals in collectivistic versus individualistic cultures may experience different levels of internal and external pressure to keep patriarchy as a social system (Yoon et al., 2010). To understand the complicated interplay of patriarchal beliefs and collectivism/individualism, these beliefs and cultural values need to be assessed at both individual and contextual levels. Congruence versus incongruence between an individual and surrounding systems, as well as between subsystems, would have significant implications for mental health, as discrepancy with one's environment is likely to increase internal and interpersonal conflicts and negatively impact one's sense of social connectedness and support. Therefore, clinicians may assess clients' patriarchal beliefs and their congruence or incongruence with environment as a routine practice, which would help develop comprehensive case conceptualization and effective intervention plans.

In relation, although this is more relevant to a community psychology or sociology study, it would be informative to examine the proposition that patriarchal beliefs stem from and reinforce patriarchal societal structures (e.g., examine bidirectional relations between individual level patriarchal beliefs and patriarchal structures of a community measured by proportion of women in local/state government positions, etc.). It would also be informative to study patriarchal beliefs from a social developmental perspective. Possible research questions include the following. What is the relationship between patriarchal social structures, development of patriarchal beliefs, and gender inequality perpetuating behaviors (e.g., benevolent sexism)? At what point could parents, educators, and mental health professionals intervene to promote empowerment and gender egalitarianism? If someone is raised in a gender egalitarian household but in a patriarchal society, are the three dimensions of patriarchal beliefs differentially affected?

Future research may also explore the relations between patriarchal beliefs and such variables as family dynamics, organizational structure, vocational behaviors, political behaviors, and self-efficacy. Such research would yield practical information for clinical intervention—for example, how endorsement of patriarchal beliefs restricts both male and female clients' educational/occupational self-efficacy and aspirations and thus limits their self-actualization. Exclusively focusing on individual characteristics

(e.g., interest, ability, personality, self-esteem) can pathologize the victims of social systems (Flax, 1993). Instead, situating clients' issues within patriarchal social systems would provide a more complete and impartial understanding of clients' issues.

Overall, the PBS was found to be a conceptually and psychometrically solid measure for patriarchal beliefs which is sensitive to group differences. We hope that development of the PBS will increase counseling psychologists' interests in this important construct. As a tool for both research and clinical assessment, the PBS is expected to facilitate incorporation of patriarchal beliefs in research and practice, which hopefully would enhance a systematic understanding of gender inequality and oppression and facilitate efforts for systemic changes.

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Appendix

Patriarchal Beliefs Scale

**Please indicate your agreement with the following items using the 1–7 scale below. There are no right or wrong answers. Please be open and honest in your responding.

1	. . . . 2	. . . . 3	. . . . 4	. . . . 5	. . . . 6	 7
strongly disagree	disagree	slightly disagree	neither agree nor disagree	slightly agree	agree	strongly agree

1. ____ At work, I would have more confidence in a male boss than a female boss.
2. ____ I am more comfortable with men running big corporations than women.
3. ____ I would feel more comfortable if a man was running the country's finances.
4. ____ I would feel more secure with a male president running the country than a female one.
5. ____ Men should lead national politics.
6. ____ It is important that men make the big decisions that will affect my country.
7. ____ Men rather than women should lead religious services.
8. ____ Matters of local government are best left up to men.
9. ____ A man should be the head of a company.
10. ____ Men would make for more competent CEOs of financial institutions.
11. ____ I prefer to have men lead town hall meetings.
12. ____ The powerful roles that men play on TV/movies reflect how society should run.
13. ____ Women should be paid less than a man for doing the same job.
14. ____ Banks should not give credit to women.
15. ____ Women do not belong in the workforce.
16. ____ It is acceptable for a man to physically reprimand his wife.
17. ____ A woman's place in the community should be mostly through volunteer work.
18. ____ Women are less able than men to manage money.
19. ____ Male work colleagues should have more of a say in the work place.
20. ____ Girls have less use for formal education than boys.
21. ____ Women's careers should be limited to traditional female jobs.
22. ____ Police should not intervene in domestic disputes between a husband and his wife.
23. ____ Men are inherently smarter than women.
24. ____ A man has the right to have sex with his wife even if she may not want to.

(Appendix continues)

Appendix (*continued*)

25. _____ A man should be the breadwinner.
26. _____ Cleaning is mostly a woman's job.
27. _____ Cooking is mostly a woman's job.
28. _____ A man should be the one to discipline the children.
29. _____ A woman should be the one who does most of the child rearing.
30. _____ A man should control the household finances.
31. _____ A woman should be the one to do the housework.
32. _____ A man is the head of the household.
33. _____ A man should make the rules of the house.
34. _____ Women should be more responsible for domestic chores than men.
35. _____ A woman should be the primary caretaker for children.

Note. Items 1–12 are for F1-*Institutional Power of Men*; items 13–24 are for F2-*Inherent Inferiority of Women*; and items 25–35 are for F3-*Gendered Domestic Roles*.