

Gendered Microaggression Inventory: Construction and Initial Validation

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Introduction

Microaggressions are nuanced forms of insulting, disrespectful communications that occur during everyday exchanges. They target individuals from a different identity groups (e.g., race, gender, religion, sex orientation, person with disability; Nadal, 2011, Sue et al., 2007; 2008). Microaggressions are often subtle and can take on both verbal and nonverbal formats. Most of the research literature on microaggressions theory has focused on racial/ethnic microaggressions (Pierce, Carew, Pierce-Gonzalez & Willis, 1978; Nadal, 2011; Sue et al., 2007). The prevalence of racial microaggression and/or subtle racial discrimination has been documented in educational settings (Harwood, Choi, Orozco, Browne Hunt, & Mendenhall, 2015; Sue, 2010), workplace (Deitch, Barsky, Butz, Chan, Brief, & Bradley, 2003) and clinical settings (Sue et al., 2007). Studies have repeatedly shown that racial microaggressions not only had negative impacts on individuals' emotional and physical health, but affected performance and productivity negatively (Flores, Tschann, Dimas, Pasch, & de Groat, 2010; Lambert, Herman, Bynum, & Ialongo, 2009; Pieterse, Carter, Evans, & Walter, 2010; Wei, Alvarez, Ku, Russell, & Bonett, 2010).

Recently, microaggressions have been utilized to explain subtle sexism and sex-based discrimination against women (Alexander, 2015; Capodilupo, et al., 2010; Nadal, 2009). Gendered microaggressions can manifest in various forms, such as making gender-stereotypical assumptions, sexually objectifying women, or being gender-blind (Moradi, Dirks, & Matteson, 2005; Nadal, 2009). Several studies have shown that gendered microaggressions cause detrimental consequences to women's psychological and behavioral health as well as their careers (Capodilupo et al., 2010; Crosby & Sprock, 2004). Most of this

research on gendered microaggressions has been generated from counseling and psychology, and focused on therapists' influences on women clients' wellbeing (Owen, Tao, & Rodolfa, 2010).

While several measurements have been established to gauge individuals' perceptions of racial/ethnic microaggressions (e.g., Nadal, 2011; Sue, et al., 2007), few exists to assess women's perceptions of gendered microaggressions. The Gendered Racial Microaggressions Scale – Black Women (GRMS-BW; Lewis & Neville, 2015) was developed to examine the experiences and perceptions from African American women exclusively. GRMS-BW included 25-items to evaluate the intersection of gendered and racial microaggressions. It yielded four factors: (a) assumptions of beauty and sexual objectification, (b) silenced and marginalized, (c) strong Black woman, and (d) angry Black woman.

Another measure is the Microaggressions Against Women Scale (MAWS), developed by Owen and his colleagues (2010), focuses on women clients' perceptions of gendered microaggressions from their therapists. The MAWS is a 7- item unidimensional scale with a Cronbach's alpha coefficient estimate of .75. Noteworthy, the MAWS is a clinically oriented measure created exclusively in counseling settings for therapists and counselors, and thus does not lend itself to use in other types of settings. New measures are needed to assess subtle forms of gender-specific microaggression across various settings.

The purpose of this study was to develop an instrument to measure gendered microaggressions in professional settings. The Gendered Microaggressions Inventory (GMI) was aimed to assess women's perceptions of microaggressions against women in professional settings (or environments). This study provided initial support for the reliability and validity of the scale. In the scale development and initial validation state, women tenured and non-tenure track instructional, clinical, and research faculty in a broad range of disciplines were surveyed. In

developing the GMI, this study relied on Lewis and Neville's (2015) *Gendered Racial Microaggressions Scale – Black Women* (GRMS-BW), Owen et al.'s (2010) *Microaggressions Against Women Scale* (MAWS), and Nadal's (2011) *Racial and Ethnic Microaggressions Scale* (REMS). The GMI instrument was designed to evaluate the subtle forms of gender bias and sexism that occur daily at interpersonal levels in professional settings.

Method

Participants

Data were collected from women tenured and non-tenure track instructional, clinical, and research faculty in a broad range of science, technology, engineering, and mathematics (STEM) disciplines at a large Midwestern land grant research university. STEM disciplines were chosen since most of these disciplines (except biology-based fields) are male-dominant, and women faculty in these disciplines, as an under-represented group, are most likely to experience and/or witness subtle microaggression and gender-based discrimination. Those STEM disciplines chosen were so defined by the National Science Foundation (NSF, 2012). These disciplines included Aerospace studies, Agriculture, Architecture, Aviation Technology, Biochemistry and Molecular Biophysics, Biology, Chemistry, Economics, Engineering, Geography, Geology, Kinesiology, Mathematics, Physics, Statistics, and Veterinary Medicine. A total of 259 women faculty across multiple campuses at this institution were recruited to participate in this study.

Procedure

With IRB approval, three procedures were used to recruit participants. First, participants received an e-mail survey invitation directly from the researchers. Email addresses of university participants were acquired from the university's planning and analysis office. An Internet survey procedure first articulated by Dillman (2000) was utilized. Participants were recruited by an

introductory e-mail correspondence that invited their participation. It was followed days later by the electronic survey, a follow-up e-mail and a final debriefing correspondence.

Two additional approaches are added in order to increase online survey response rate. First, the researchers reached out to the key members on a STEM-related longitudinal project funded by National Science Foundation ADVANCE program. They sent out an email to women STEM faculty members who were participants in the ADVANCE grant project at the university through their listserv and invited them to participate in this study on our behalf. Second, the researchers solicited help from a female senior administrator from College of Engineering and asked her to send out direct survey invitation emails to all women faculty in that college.

The data are gathered using a Qualtrics online questionnaire. On the first page of the Qualtrics questionnaire, the researchers provided the consent information in written form including the purpose of the study, risks and benefits of participation, their rights as participants, and contact information should they have any questions or concerns. Faculty wishing to participate in the study continued to fill out the questionnaire at their own pace. The questionnaire took about 15 minutes to complete. Upon their completion, the participants were immediately shown debriefing statements with detailed explanation of the study. Participants' responses remained confidential and anonymous.

Instruments

Gendered Microaggression Inventory (GMI). The Gendered Microaggression Inventory was developed for this study using literature examining racial microaggression and gendered microaggression. Five distinct dimensions were identified from the research literature: (1) feeling silenced or marginalized, (2) sexual objectification, (3) ascription of intelligence, (4) being a strong woman, and (5) workplace and school microaggression (Lewis & Neville, 2015;

Nadal, 2011; Owen et al., 2010; Sue, et al., 2007). Five to eight statements were included for each dimension using a variety of previously published racial microaggression and gendered microaggression instruments (Lewis & Neville, 2015; Nadal, 2011; Owen et al., 2010; Sue, et al., 2007). The authors revised several items to contextualize them for these faculty participants. The instrument consisted of 28 items, and was designed to assess the extent to which participants agree or disagree with the statements regarding events of gender-based microaggressions in various settings on a 7-point scale from 1 = Strongly disagree to 7 = Strongly agree. Example items include: “Someone assumed I am sassy and straightforward.” “Someone made a sexually inappropriate comment.” “My opinion was overlooked in a group discussion because of my gender.” Based on the feedback from participants, three items were perceived to be associated with a particular ethnic group. This observation was confirmed by the overwhelming responses of “Not Applicable” on those three items, which were excluded from the following analyses.

Demographic information. Participants were asked about their position title/rank (e.g., instructor, clinical professor, associate professor), position track (e.g., non tenure-track, tenure-track including tenured), years served at the current institution, age, marital status, and ethnicity. Participants were asked to specify their home academic department or unit. This action was a deliberate decision, so that the researchers were able to code and filter participants’ responses in a consistent way at the data analysis stage.

Data Analysis and Preliminary Results

All responses collected from the Qualtrics survey were first filtered in the data analysis stage to meet the criteria of the intended participants: women instructional, clinical, and research faculty in a broad range of science, technology, engineering, and mathematics (STEM) disciplines. A total 90 participants met the criteria and completed the survey.

All analyses were conducted using SPSS Mac 22 version. The data were first cleaned and checked for missing values as well as outliers. The factorability of the correlation matrix was assessed using Bartlett's test of sphericity and it was statistically significant, $p < .001$. Kaiser-Meyer-Olkin (KMO) was used to measure sample adequacy with the value of .924. According to Tabachnick and Fidell (2001), a KMO value greater than .60 is required to factor analysis. Thus, our sample was deemed to be adequate for the factor analysis procedure.

We conducted an exploratory factor analysis (EFA) using a principle component extraction and varimax rotation method. We examined various factor-structure solutions (e.g., two-, three- factor solution) to determine which factor solution fits the data the best. Decisions regarding the numbers of factors to rotate to a final solution was made using two criteria, the Kaiser criterion (1960) and Cattell's scree plot (1966). The Kaiser criterion, the default option in SPSS, extracts any factor with an eigenvalue greater than 1.0. Cattell's scree plot demonstrates a graphic representation of the eigenvalues in order of size. An examination of the scree plot indicated that a three factor solution was the most reasonable.

Items with less than a .40 loading on one factor or with cross loadings (i.e., high loadings on more than one factor with a difference of less than .15) were omitted. Communalities of items were also checked using the threshold of a value of .40 (Tabachnick and Fidell (2001)). The communalities for retained items ranged from .518 to .890, suggesting the items retained

were contributed to the variance of the factors. We retained 21 items after these procedures and the factor structure stayed the same.

The first factor included 15 items and explained 48.2% of the variance. Items with the highest loadings included: “Someone has tried to ‘put me in my place’ because of my gender.” “I have been disrespected in my workplace because of my gender.” “Someone assumed that my work would be inferior to men’s work.” This factor was named *Feeling marginalized and challenged intellectually*. It demonstrated or inferred that women are intellectually inferior to men and/or women’s authorities are being challenged. The second factor included 5 items and explained 22.56% of the variance. Items with the highest loadings included: “Someone assumed I am sassy and straightforward.” “Someone made me feel unattractive as a woman.” “I have been told that I am too independent as a woman.” This factor was named *Too forceful or agentic*. It reflected the social expectations or stereotypes of women being more communal, less agentic. Women who demonstrate agentic traits are perceived negatively (Diekmann et al., 2008, 2013). The third factor explained 7.25% and included 1 item stated “Someone assumed I am reserved and shy.” This factor was named *Traditionality of feminine personality*.

Table 1
Intercorrelations for GMI Subscales

Factors	F1	F2	F3
1. Feeling marginalized or challenged intellectually	-	.781**	.405**
2. Too forceful or agentic	.781**	-	.321*
3. Traditionality of feminine personality	.405**	.321*	-

* $p < .01$. ** $p < .001$.

Factor intercorrelations were calculated using Pearson’s correlations. All three factors were positively correlated (Table 1). The inter-item reliability using Cronbach’s alpha coefficients were .979 for *Feeling marginalized or challenged intellectually*, .895 for *Too*

forceful or agentic. Since there was one item in the third factor, Cronbach's alpha was not calculated. The total scale had a Cronbach's alpha of .975.

Discussion

The findings of this study suggest that overt sexism in daily interactions (e.g., make a sexism joke, catcalling) have become less often. Instead, the prejudices people hold against women are most likely to manifest themselves in subtle and implicit formats, i.e., microaggressions. This study fills a gap by developing a measure to assess women's perceptions of microaggressions against women at interpersonal levels in professional settings (or environments).

There are several limitations to the study. First, a larger and more balanced sample size is preferable. We intend to expand our sample size moving forward. Second, we were unable to ascertain whether or not those who did not respond to the survey invitation were different from the sample we had, which could have resulted in a biased sample. Third, the experiences of gendered microaggressions are subjective in nature. In other words, different women may have different perceptions toward the same situations.

Ultimately, this research provides a greater understanding of how women faculty perceive and encounter gender-based microaggression in a broad range of STEM academic fields. These results contribute to the overall body of literature in gender equity on college campus, but especially for those STEM disciplines where women are underrepresented and undervalued.

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