

WOMEN'S IRRATIONAL BELIEFS ABOUT TRADITIONAL FEMININE SEX ROLE STEREOTYPES WITH THE MULTI-CULTURAL VERSION OF THE O' KELLY WOMEN BELIEFS SCALE

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Abstract

To explore variation in the content of women's beliefs about traditional feminine sex role stereotypes, we ran a confirmatory factor analysis on data from a multi-national sample of 1643 women who completed the 30-item multi-cultural version of the O'Kelly Women Beliefs Scale. Analyses testing whether the data best conformed to a one- or a three-factor structure found that both models appeared to fit the data equally well. To further explore if distinguishing between different domains of irrational beliefs yielded greater explanatory power, we ran an additional exploratory factor analysis. Results showed that there were differences in the relative amount of variance explained by each of the three content areas initially included in the original version of the instrument; work and profession, love and sex, and self-sacrifice and victimization. The work and profession content area accounted for a larger percentage of the variance (33.41%) relative to the other subscales. Results were explained in terms of the relative influence of multi-national changes in the number of women joining the workforce over the past several decades.

KEY WORDS: *irrational, beliefs, adaptation, sex, role stereotypes, scale.*

Resumen

Para explorar la variación en el contenido del pensamiento irracional de las mujeres sobre los estereotipos tradicionales del rol sexual femenino utilizamos un análisis factorial confirmatorio en los datos de la versión multicultural de 30 ítems de la "Escala O' Kelly de creencias de la mujer", provenientes de una muestra multinacional de 1643 mujeres. Los resultados encontraron que los datos formaban de manera adecuada modelos con estructuras de uno y tres factores. A continuación, un análisis factorial exploratorio indicó diferencias en el valor relativo de la varianza de tres áreas cuyo contenido provino de la versión original del instrumento: trabajo y profesión, amor y sexo, y autosacrificio y victimización.

El área de trabajo y profesión presentó un mayor porcentaje de la varianza total (33,41%) que las otras subescalas. Los resultados fueron explicados en términos de la relativa importancia dada por cambios multinacionales en el número de mujeres que han ingresado al área laboral en las últimas décadas.

PALABRAS CLAVE: *irracional, creencias, adaptación, sexo, estereotipos de roles, escala.*

Introduction

Cross-cultural findings pertaining to Rational-Emotive Behavior Therapy suggest that although irrationality—the shoulds and demandingness initially formulated by Albert Ellis (1958) in the United States in the mid 1950's—generally applies to countries in Latin America, Europe, and parts of Africa and Asia, there seem to be significant differences in the degree of musts and demandingness in some cultures (Ellis & Lega, 1993; Lega & Ellis, 2001). Furthermore, Wolfe and Neimark (1991) suggested that there are specific irrational demands that women place on themselves as a result of socialization.

The initial O'Kelly Women's Belief Scales (OWBS; O'Kelly, 2011) were developed from the list of demands that Wolfe and Naimark (1991) suggested women place on themselves in the four dominant areas of Western society: sex-love relationships, physical image and sexuality, work and career, and victimization and self-sacrifice. From their list of irrational beliefs in these four areas, 23 demands that women place on themselves were extracted to form the basis of the Women's Belief Scales. All items were included from Wolfe and Naimark's (1991) list except where there was considered to be repetition.

Within their rational-emotive behavior therapy framework (Ellis, 1958; Ellis & Lega, 1993) these beliefs are considered irrational because of their demanding, extremely rigid, prescriptive form. Therefore, the 23 demands were then rewritten three times to reflect the irrational thought processes (Burgess, 1990; Campbell, 1985; Dryden, 1984; Ellis, 1977, 1984; Wallen, DiGiuseppe, & Wessler, 1980) of awfulizing (e.g., "It's horrible and awful"), low frustration tolerance (e.g., "I can't stand it"), and generalized negative self-rating (e.g., "I'm no good"). This resulted in 92 items. Questionnaires were sent to all the women working at a large, multi-site teaching hospital. The initial study had a sample of 974 respondents. Following factor analysis four scales were developed each consisting of 16 items and reflecting the four process items of demandingness, awfulizing, low frustration tolerance and self-downing. There were therefore 64 items in the original OWBS.

To assess the psychometric properties of the scales envelopes containing questionnaires were distributed to a convenience sample of 285 diverse women aged 18 years or over. To enable test retest reliability to be calculated, a number of women were asked to complete a second copy of the WBS one month after the initial OWBS. Of the envelopes distributed 210 (74%) were returned with complete data. The scales of the OWBS were shown to have good concurrent, divergent, construct and test-retest reliability (O'Kelly, 2011).

To assess concurrent validity of the OWBS, three instruments previously used in the areas of women's issues, sex, and gender (Beere (1979, 1990a, 1990b) were selected because it was believed that each scale reflected underlying gender attitude or schema (O'Kelly, 2011); The Bem Sex Role Inventory (BSRI; Bem, 1981b), The Attitudes Toward Women Scale (AWS; Spence, Helmreich, & Stapp, 1973) The Tradition-Egalitarian Sex Role Scale (TESR; Larsen, & Long, 1988). As predicted, the BSRI Femininity Scale correlated positively with the OWBS, while the Masculinity Scale of the BSRI, and the egalitarian response on the AWS, and the TESR correlated negatively.

To assess divergent validity, the Extraversion scale of the Eysenk Personality Inventory (EPI; Eysenk, & Eysenk, 1964) was used. No correlation between the OWBS and Extraversion was found.

The Neuroticism scale of the EPI (Eysenk, & Eysenk, 1964) was included to assess the relationship between the OWBS and emotional disturbance. Given Ellis's (1962, 1994) theory it was assumed that the scales of the OWBS would be related to emotional disturbance. As predicted a positive correlation between neuroticism and the OWBS was obtained. The authors reported test retest reliabilities ranging from .81 to .92 and split half reliabilities ranging from .90 to .95 for this scale.

In order to enable comparison with the original Australian version of the instrument (O'Kelly, 2011), single exploratory factor analyses were run on separate samples from each of the four countries: Mexico (Heman, Lega, Villasenor, & Alba, 2011), United States (Heman, Lega, O'Kelly, Friedman, & Feinberg, 2012), India (Kumar, Lega, & Heman, 2010), and Colombia (Lega, Heman, & Paredes, 2011). Then, another study was done to explore the overlapping of items across countries using a multi-cultural sample of women from USA, Australia, India, Mexico, and Colombia (Lega, Heman, O'Kelly, Kumar, Alcid, & Rodriguez, 2014). An exploratory factor analysis showed that 43 (30 irrational and 13 rational) out of the original 92 items of the O'Kelly Women Belief Scales accounted for 38.43% of the total variance. In addition, the multi-cultural version of the scale (Lega et al., 2014) did not include any of the original items that measured "physical image."

A problem was evident when other studies were conducted to explore how variables like migration (Lega, Alcid, Quedding, & Khumar, 2011; Locher, Lega, & Kumar, 2012), and acculturation (Lega et al., 2009; Lega & Procel, 2013) may have had an influence on womens' beliefs towards the traditional female roles. The length of the original instrument, 92 items, presented difficulties in the gathering of the data. Therefore, the need to confirm the factor structure of the shorter multi-cultural version of the original instrument, the OWBS-M, was evident. The aim of the present study is to explore the psychometric properties of the new 30-item multi-cultural version of the OWBS (Lega et al., 2014).

Method

Participants

An intentional, non-parametric sampling method was used to collect data on a cross-cultural sample of 1643 women born and living in US, India, Colombia, and

Mexico, in a wide range of settings such as universities, libraries, and cafeterias. Ages ranged from 17 years old to 70 years old, with a total average of 33,04 years of age ($M_{US} = 30.58$; $M_{Mexico} = 31.96$; $M_{India} = 36.52$; $M_{Colombia} = 33.10$).

Instrument

A new 30-item multi-cultural version (Lega et al., 2014) of the O'Kelly Women's Belief Scales (OWBS; O'Kelly, 2011) was used, with its five-point Likert type scale, ranging from 1= "Strong disagreement" to 5= "Strong agreement" to indicate the extent of the respondent's agreement with each item.

Only the 30 "irrational" items from this multi-cultural version were included as previous analyses on data from the five countries, US, India, Colombia, Mexico, and Australia, showed a 100% overlap. This was not the case for the remaining 13 "rational" items of the multi-cultural version of the OWBS.

Procedure

The instrument was individually administered to volunteer women in a wide range of settings like libraries, universities, parks, restaurants, and other public places in US, India, Colombia, Australia, and Mexico. They previously signed an informed consent, and a number rather than a name was given to each participant to maintain their anonymity.

Data analysis

For the current study, confirmatory factor analyses were run on the new 30-item multi-cultural version (Lega et al., 2014) with version 6 of the MPlus statistical analysis software package (Muthén & Muthén, 2010) using maximum likelihood estimation to test if the data best conform to a one or a three factor structure. After initially fitting each of the models, we allowed some correlations between the item residuals within each factor based on the modification indices and refit the models.

Then, to try to further explore the psychometric properties of the new 30-item multi-cultural version of the OWBS (Lega et al., 2014) the relative weight of the individual content areas (work and profession, love and sex, and self-sacrifice and victimization) was determined by using a principal components analysis.

Results

The current study proposed that the 30-item multi-cultural version of the OWBS (Lega et al., 2014) reflects, in fact, three separate content areas of irrational beliefs related to work and profession, love and sex, and self-sacrifice and victimization. To test this prediction, confirmatory factor analyses were run to test whether the data best conformed to a one or a three factor structure. We tested whether the data fit a measurement model that included (1) three distinct latent factors reflecting irrational beliefs in three separate domains (i.e., work and profession, love and sex, and self-sacrifice and victimization) (see Figure 1) or (2) a

single latent factor reflecting participants' overall tendency to endorse irrational beliefs across multiple areas of their life (see Figure 2). Analyses were run with version 6 of the MPlus statistical analysis software package using maximum likelihood estimation. After initially fitting each of the models, we allowed some correlations between the item residuals within each factor based on the modification indices and refit the models. Results showed that both the one and three factor models adequately fit the data (see Table 1).

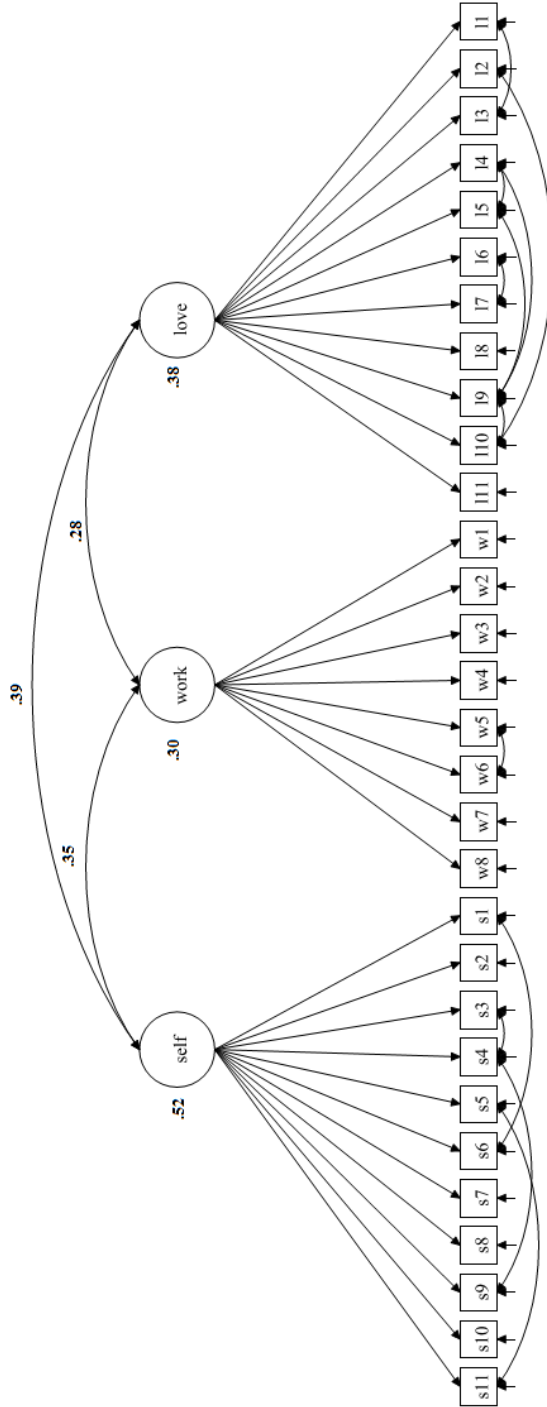
Table 1
Fit statistics for the one and three factor models

Model	RMSEA	CFI	TLI	SRMR	χ^2	AIC	BIC
Single factor model	0.06	.88	.87	.05	19368,63**	129316,22	129867,46
Three factor model	0.05	.90	.89	.05	19368,63**	128942,21	129509,66

For the one factor model, all of the items were loaded onto a single latent variable theoretically representing the participants' overall endorsement of "irrational beliefs" (see Figure 1). The chi-square test of model fit for the one factor model showed that the model implied variance-covariance matrix significantly differed from the observed variance-covariance matrix providing initial indication that the model did not fit the data well-though this is not particularly surprising given the study's large sample size. That said, the other fit statistics showed that the one factor model did fit the data adequately well with the RMSEA and SRMR each at or near .05 and the CFI and TLI each just below .90.

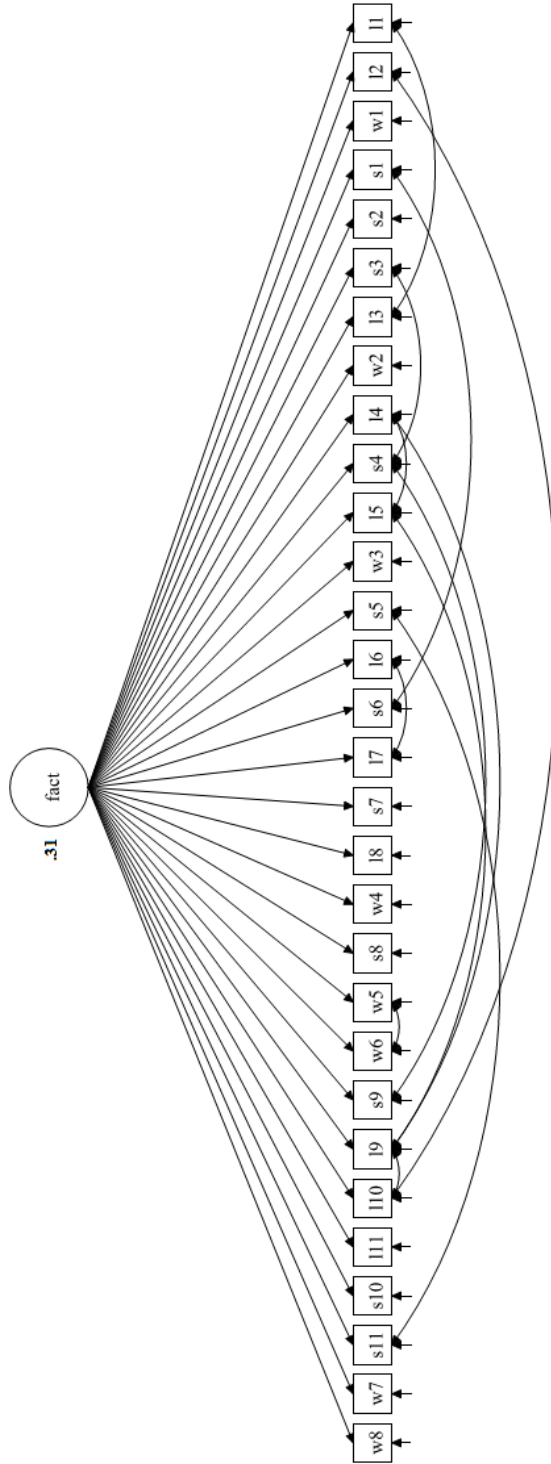
Based on an inspection of the content of the items, we ran a second model including three latent factors reflecting three hypothesized content areas related to work and profession, love and sex, and self-sacrifice and victimization (See Figure 2). The covariances between each of the three factors were also modeled. Similar to the one factor model, the fit statistics for the three factor model showed adequate fit. Again, the chi-square test of model fit showed that the model implied variance-covariance matrix significantly differed from the observed variance-covariance matrix. However, the RMSEA, SRMR, TLI, and CFI all showed adequate fit. Fit statistics for each of the two models are presented in Table 1, and factor loadings for each item for the two models are presented in Table 2.

Figure 1
Three factor model assuming that the scale items reflect three distinct domains in which participants may hold irrational beliefs



Note: Path coefficients reflect the covariances between the latent factors. The variance of each latent factor is also indicated to its left. Fit statistics can be found in Table 1.

Figure 2
One factor model assuming that all scale items reflect a single underlying factor representing participants' overall endorsement of irrational beliefs across multiple domains of life (e.g., work, romantic relationships, etc.)



Note: The variance of the latent factor is also indicated to the left of the factor. Fit statistics can be found in Table 1.

Table 2
Standardized factor loadings for one and three factor models

Item	Area	Item wording	Item loading for 1 factor model (SE)	Item loading for 3 factor model (SE)
12	Love	If I did not satisfy the wishes of others, particularly the men in my life, it would be unbearable (L1).	.51 (.02)	.56 (.02)
16	Love	It would be unbearable if I did not have someone stronger than myself to rely on (L2).	.46 (.02)	.50 (.02)
22	Love	I must satisfy the wishes of others - particularly the men in my life (L3).	.60 (.02)	.67 (.02)
31	Love	It would be/is awful not to have a husband or male partner (L4).	.47 (.02)	.50 (.02)
34	Love	It would be/is unbearable not to have a husband/male partner (L5).	.58 (.02)	.61 (.02)
50	Love	It would be so uncomfortable if I challenged the decisions and advice of the men in my life that I could not stand it (L6).	.55 (.02)	.57 (.02)
52	Love	I am an unpleasant person if I challenge and do not accept the decisions and advice of the men in my life (L7).	.65 (.02)	.66 (.02)
55	Love	It would be awful if I did not satisfy the wishes of the men in my life (L8).	.63 (.02)	.70 (.02)
69	Love	I must have a husband/male partner (L9).	.53 (.02)	.57 (.02)
71	Love	I must have someone stronger on whom I can rely (L10).	.42 (.02)	.47 (.02)
72	Love	I would not be a worthwhile person if I acted assertively with men (L11).	.54 (.02)	.52 (.02)
19	Self	I am nothing without a child (S1).	.58 (.02)	.61 (.02)
20	Self	If I act in such a way that I upset others it shows that I am a hopeless person (S2).	.61 (.02)	.63 (.02)
21	Self	If I did not take total responsibility for my child/children it would be unbearable (S3).	.37 (.02)	.39 (.02)
33	Self	I should be responsible for the care of my children at all times (S4).	.42 (.02)	.46 (.02)
44	Self	If I did not run the home (i.e. clean, wash, and cook) it would be a catastrophe (S5).	.52 (.02)	.54 (.02)
51	Self	I must have a child to be fulfilled (S6).	.52 (.02)	.54 (.02)
54	Self	If I put my desires or wishes first I am an unlikeable person (S7).	.61 (.02)	.62 (.02)
63	Self	If others at work are embarrassed or upset by how much I know it goes to show that I'm an	.61 (.02)	.60 (.02)

Item	Area	Item wording	Item loading for 1 factor model (SE)	Item loading for 3 factor model (SE)
		unlikeable person (S8).		
66	Self	If I do not take total care of my children I am a worthless person (S9).	.56 (.02)	.60 (.02)
75	Self	I'm a failure if I do not look after everyone else before myself (S10).	.59 (.02)	.61 (.02)
81	Self	It reduces my self-worth if I do not take care of the home (i.e. cook, clean, and wash) (S11).	.66 (.02)	.69 (.02)
18	Work	It would be a disaster if I took my work too seriously (W1).	.47 (.02)	.50 (.02)
26	Work	As a woman it would be/is terrible to have a senior position at work (W2).	.54 (.02)	.58 (.02)
40	Work	I'm hopeless if I don't help others at work to get on well together (W3).	.58 (.02)	.58 (.02)
61	Work	I cannot stand doing things (e.g. mathematics) that are too difficult for me as a woman to understand (W4).	.55 (.02)	.58 (.02)
64	Work	For me to try to get better pay/work conditions would be terrible (W5).	.57 (.02)	.61 (.02)
65	Work	I am an unlikeable person if I strive for senior position at work (W6).	.58 (.02)	.63 (.02)
85	Work	I must not try to do things (e.g. mathematics) that are too difficult for me as a woman to understand (W7).	.58 (.02)	.64 (.02)
86	Work	It is so unpleasant if I take my work too seriously that I could not stand it if I did (W8).	.57 (.02)	.61 (.02)

Note: SE= standard error; L= love; S= self; W= work.

The current findings show no support for preferring either the one or three factor models over the other; both models appear to fit the data equally well. On the one hand, parsimony may dictate a preference for the one factor model. On the other hand, however, distinguishing between different domains of irrational beliefs may yield greater explanatory power.

To further explore the issue of possible variation in the relative "weight" of each of three subscales of the OWBS (2011), we ran an exploratory factor analysis. That is, we tested if, beyond the scale having a three factor structure, some subscales accounted for a substantially greater proportion of the variation in women's responses.

A principal components analysis with a varimax rotation and minimum item loadings of .4 found four factors with eigenvalues greater than 1, accounting for a total of 49.37% of the variance (see Table 3). The first factor was made up almost entirely of the items measuring irrational beliefs related to participants' work and professional life (eigenvalue= 10.02) and it accounted for 33.41% of the variance, far more than any other factors. Four items related to self-sacrifice and victimization and

one item related to love and sex also loaded onto the first factor. Inspection of these items revealed, however, that their wording was unclear and likely made it difficult for participants to determine a specific area of content. For example, item 63 was originally meant to represent self-sacrifice, however, the use of the word "work" may explain why it is loaded into the work and profession category. The second factor contained only items related to self-sacrifice and victimization (eigenvalue= 2.13) and accounted for an additional 7.11% of the variance. The third and fourth factors were made up entirely of items related to love and sex. However, within that contact area, two scenarios were reflected. The third factor contained items that appeared to be related to self-sacrifice within a relationship context (eigenvalue= 1.57) and accounted for 5.22% of the variance. Finally, the fourth factor contain items that reflected an underlying demand to be mated (eigenvalue= 1.09) and accounted for 3.63% of the variance.

Table 3

Results of principal component analysis for the weight of specific content areas of the 30 irrational items of the multi-cultural O'Kelly Women Belief Scales (2011)

Item	Area	Item	1	2	3	4
65	Work	I am an unlikeable person If I strive for senior position at work.	.717			
64	Work	For me to try to get better pay/work conditions would be terrible.	.715			
63	Self	If others at work are embarrassed or upset by how much I know it goes to show that I'm an unlikeable person.	.642			
26	Work	As a woman it would be/is terrible to have a senior position at work.	.634			
85	Work	I must not try to do things (e.g. mathematics) that are too difficult for me as a woman to understand.	.612			
86	Work	It is so unpleasant if I take my work too seriously that I could not stand it if I did.	.537			
61	Work	I cannot stand doing things (e.g. mathematics) that are too difficult for me as a woman to understand.	.528			
72	Love	I would not be a worthwhile person if I acted assertively with men.	.497			
18	Work	It would be a disaster if I took my work too seriously.	.494			
40	Work	I'm hopeless if I don't help others at work to get on well together.	.474			
75	Self	I'm a failure if I do not look after everyone else before myself.	.470			
20	Self	If I act in such a way that I upset others it shows that I am a hopeless person.	.455			
54	Self	If I put my desires or wishes first I am an unlikeable person.	.449			

Item	Area	Item	1	2	3	4
33	Self	I should be responsible for the care of my children at all times.		.748		
21	Self	If I did not take total responsibility for my child/children it would be unbearable.		.683		
66	Self	If I do not take total care of my children I am a worthless person.		.628		
44	Self	If I did not run the home (i.e. clean, wash, and cook) it would be a catastrophe.		.562		
81	Self	It reduces my self-worth if I do not take care of the home (i.e. cook, clean, and wash).	.468	.539		
51	Self	I must have a child to be fulfilled.		.536		.407
19	Self	I am nothing without a child.		.524		
12	Love	If I did not satisfy the wishes of others, particularly the men in my life, it would be unbearable.			.639	
22	Love	I must satisfy the wishes of others - particularly the men in my life.			.635	
55	Love	It would be awful if I did not satisfy the wishes of the men in my life.			.614	
50	Love	It would be so uncomfortable if I challenged the decisions and advice of the men in my life that I could not stand it.			.546	
71	Love	I must have someone stronger on whom I can rely			.546	.437
52	Love	I am an unpleasant person if I challenge and do not accept the decisions and advice of the men in my life.	.461		.530	
16	Love	It would be unbearable if I did not have someone stronger than myself to rely on.			.480	.431
31	Love	It would be/is awful not to have a husband or male partner				.783
34	Love	It would be/is unbearable not to have a husband/male partner.				.744
69	Love	I must have a husband/male partner.				.680

Discussion

Using both confirmatory and exploratory factor analysis, we concluded that there is evidence for the scale measuring multiple constructs, and that irrational beliefs related to work and career carry more “weight”, statistically, than those related to sex-love relationships or victimization and self-sacrifice but does not exclude them.

The significantly higher relative weight of the work and career items as compared to the others may be partially explained by the relative influence of women joining the work force in recent decades, an international phenomenon. Ironically, this generally positive phenomenon may also help maintain women’s irrational ideas about the traditional feminine sex role stereotype.

The conflict between the traditional feminine sex role stereotypes of women and their growing participation in the work force was problematic in that it challenged what it meant to be a woman and a man. For example, Brumley (2014) noted in an extensive study conducted in Mexico, that in order to succeed at a multinational corporation a woman must marry the company, 'become a man' in terms of the commitment one has to the company, and overtly prove that sacrifices would be made in one's personal life for the sake of the company. Women believed that being a man was enough of a cause to demand the respect in the workplace that women lacked and that the men did not have to undergo the scrutiny that women's work faced. Women had specific functions, but being in positions of power was rarely the case. Women viewed their roles in the workplace as one that does not compete for the male positions. Rather their role was to complement the work of the man.

In another example of Anglo-English speaking women and the workplace, Owuamalam and Zagefka (2014) suggest that stigmatization crippled the view they had of themselves based on the outgroup's view of them which in turn caused the women to adjust their beliefs accordingly, specifically in terms of employability. It was suggested that because of these adjusted views, women lowered their expectations and would in turn avoid situations that challenged views in order to elude disappointment; this even included avoiding seeking employment in general.

Furthermore, Heilman, and Guzzo (1978) suggest that the differential causal explanations that arise from sex differences, rather than the sex differences themselves result in the unequal treatment of equally successful men and women. Causal explanations typically used to account for a woman's work success (luck, effort, task difficulty) produced tendencies to award them fewer and less desirable organizational rewards compared to the explanations typically used to account for a man's work success (ability).

Fletcher, Jordan, and Miller (2000) found that for a larger proportion of women in the work force in industrialized Western societies, a relational model was enacted and a greater emphasis was placed on mutual empathy and empowerment. This was highly beneficial for the company; however, it also hindered the individuals fostering these processes. The authors believed the misinterpretation of women's beliefs about mutual effectiveness and empowerment was what caused females' distress. Women did not receive the acknowledgement for their work, but in turn were categorized as not doing real work, as helpful individuals who enjoy mothering, being too detail oriented, as people who needed to be liked, and as deficient relative to men, thus reinforcing the stereotypes of traditional gender roles. Similarly, in a sample of 242 subjects who participated in three experimental studies investigating reactions to a woman's success in a male gender-typed job, Heilman and Wallen (2004) found that gender stereotypes can prompt bias in evaluative judgments of women even when these women have proven themselves to be successful and have demonstrated their competence. Shaffer, Joplin, Bell, Lau, and Oguz (2000) suggested that women faced distress; however, it was not for the misinterpretations of their actions, but for the conflict they experience in terms of their social identity. Women were faced with the fact that they not only had to be committed workers but also had to attend to the needs of their family at home. The distance between what women expected to experience in the workforce and their actual experience led

to the distress. Women with negative views toward other women faced a higher rate of distress and Shaffer the authors suggested that a woman might have held herself in a higher regard and have higher expectations for herself than for other women. Furthermore, being a part of that larger group, they themselves could not achieve the goals they have set, thus creating an impossible standard to achieve and increasing the disparities in their social identities.

There is a scarcity of research work on irrational beliefs of women in the corporate sector in India. However, the progressive approach of the Government in introducing The New Companies Act, 2013 ensures adequate representation of women on the Board as well as to inculcate greater diversity of views across the boards of companies. The Act provides that every listed company/ public company with paid up capital of Rs 100 crores or more/public company with turnover of Rs 300 crores or more shall have at least one woman (www.mca.gov.in/Ministry/Pdf/Companies Act 2013). This law is ground breaking as it gives representation to women in senior leadership and top decision making body. Although some changes were present and the number of women included in the work force were increased, it remained evident that traditional gender roles were still practiced and enforced, whether that be through conscious or subconscious methods.

The relative higher weight of a particular content area, namely work and occupation, may be partially reflecting the shifting role of women in the work force. This does not eliminate the relative importance of women's irrational beliefs in the other content areas like sex-love relationships or victimization and self-sacrifice. Such traditional irrational beliefs are still maintained by gender related messages in differences across cultures.

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