Measuring Attitudes toward Gender Roles and Relations - adaptation of a gender attitude scale for adolescents in Tanzania

Summary

This brief describes the development and testing of a 10-item scale to measure attitudes toward gender equality among Tanzanian adolescent men and women ages 15-19 in the context of the International Men and Gender Equality Survey (IMAGES), a population-based survey. The items included were based on previous adaptations of the Gender Equitable Men's (GEM) Scale, used in multiple contexts, as well as on qualitative interviews and focus groups and local expert review. The survey was administered to a population-based sample of 2016 men and women ages 15-49, of which 672 were adolescents (336 men and 336 women), in five regions of Tanzania – Kagera, Dar es Salaam, Iringa, Tabora and Dodoma. Factor analyses suggest a one factor solution that is internally consistent (alpha = 0.77 for adolescent men; 0.76 for adolescent women). As hypothesized, more support for equitable norms (i.e., higher scale scores) is significantly associated with higher education level, urban residency, and less self-reported use of intimate partner violence among men; but was not associated with current use of modern contraceptives or condom use at last sex.

Introduction

Two decades of research have highlighted the links between gender inequality and a range of negative health and development outcomes, including in the domain of sexual and reproductive health. Specifically, evidence suggests that men's individual and collective attitudes around gender as well as the social reproduction of these norms by institutions and societies are directly related to men's behaviors, with implications for themselves and their partners (Pulerwitz, 2008). Adolescence is a particularly crucial time in the development and internalization of gender attitudes as well as in shaping relationship and reproductive and sexual health trajectories (John et al., 2017). It is therefore important to develop tools to

measure gendered attitudes and norms, both in the context of large-scale survey efforts that examine multiple outcomes, as well as for interventions targeting attitudinal change among adolescents to most accurately measure change.

While other scales to measure gender norms existed, the original GEM scale was developed in 2008 by Promundo and the Population Council to address a need for an easily administered evaluation tool. The original scale was initially developed and validated with young men aged 15-24 years in Brazil and included 24 items across two subscales: Inequitable Gender Norms (17 items) and Equitable Gender Norms (7 items). The Inequitable Gender Norms subscale in particular has since been applied, adapted and tested with both men and women in more than 20 countries (Singh et al., 2013; Vu et al., 2017). While the GEM scale has been frequently used with youth in program evaluation, to our knowledge, IMAGES in Tanzania was the first time an adaptation of the GEM scale was asked to adolescents (ages 15-19) in the context of the International Men and Gender Equality Survey (IMAGES), a population-based survey in rural and urban areas of five regions of Tanzania: Dar es Salaam, Kagera, Tabora, Iringa and Dodoma.

Adaptation of the scale has been necessary (and encouraged) to adequately and validly capture the realities of specific contexts or communities. Items are often added to the scale for cultural specificity and other items that are deemed not relevant or show limited variation and limited contribution to the overall scale in a particular setting are eliminated or not used in analysis. This brief describes the development and validation of an adapted 10-item gender attitudes scale, based on the GEM scale.

Methods

Study sample

The International Men and Gender Equality Survey (IMAGES) was conducted in Tanzania in 2016-2017 across 56 communities in five regions of Tanzania, with 1008 men and 1008 women aged 15-49 years. Respondents were selected through a multi-stage sampling design, with clusters in the five regions randomly selected using probability proportional to size (PPS) sampling, households selected through a random walk approach, and one eligible respondent randomly selected from a household listing. To allow for stratified analyses, adolescents aged 15-19, as a primary population of interest for the survey, were oversampled (n = 672; 336 adolescent men and 336 adolescent women).

The surveys were administered face-to-face in respondents' homes by sex-matched, trained interviewers using Computer Assisted Personal Interviewing (CAPI) technology. The study was approved by the Tanzania Commission for Science and Technology (COSTECH), Tanzania's research ethics approval board. Please see the full IMAGES Tanzania report for additional methodological details.

Item Development and Adaptation

Only items from the original GEM "inequitable Gender Norms" were kept and adapted to the local context; we also included additional items developed and added to IMAGES studies over time to measure attitudes. We conducted focus groups and interviews with adolescents and young adults that informed the adaptation of the overall survey and specifically the attitude measures (and newly developed normative items). Drafts of the questionnaire were also reviewed by local experts with expertise in gender, violence, and sexual and reproductive health. Ultimately, the IMAGES study in Tanzania included 8 of the original subscale's 17 items, across the four content domains: violence, reproductive health, sexuality, and domestic chores and daily life. For each item, the respondent was asked to select whether they strongly agreed, agreed, disagreed, or strongly disagreed with the statement.

In addition to items related to attitudes about gender, the IMAGES survey also includes sociodemographic information, childhood experiences, relationship dynamics (including intimate partner violence) and sexual and reproductive health behaviors. Questions were adapted from several sources, including World Health Organization instruments on violence against women, the Demographic and Health Surveys, and others. The questionnaire was translated and back-translated, with interpretations discussed in a small group and agreed on. The questionnaire was piloted with 25 respondents (male and female), with additional items revised based on the pilot results.

Data Analysis

All statistical analyses were conducted using Stata 14, and were conducted in two stages. First, we conducted an exploratory factor analysis using maximum likelihood extraction,[1] including 12 attitude items on the full sample of respondents. Due to a particular interest in understanding the role of gender attitudes and norms in the lives of young men and women in Tanzania, we then replicated the same analysis separately with the adolescent (15-19 years old) and the adult samples of the IMAGES Tanzania study. The adolescent analysis, reported here, was conducted with a sample of n = 627 adolescents (324 men and 303 women) who had no missing responses or "don't know" on all 12 items.[2] Scree plots and eigenvalues were used to determine the number of factors; and an oblique rotation was used to permit correlation among the factors, which more accurately represent domains related to that underlying construct (Nunnally and Bernstein 1994). Internal consistency reliability is presented through Cronbach's alphas. Factorability statistics and conceptual interpretability were examined and reported in the results section.

A final scale was created by taking a mean score across the items, on range of 0 to 3 with higher scores indicating more equitable attitudes. Associations between the attitudes scale and other key variables were tested with logistic regression and to better assess predictive and construct validity. These variables include: 1) education, measured as either having no formal education,

[1] Maximum Likelihood Estimation (MLE) is a common extraction method in factor analysis, used to iteratively produce parameter estimates most likely to have resulted in the actual correlation matrix.

[2] "Don't know" was not presented as a response option to respondents, it was only coded as such if the respondent did not select a response on a strongly agree to strongly disagree scale and specifically stated that they did not know the response.

up to primary education completed, or up to secondary education completed; 2) urban/rural residence; 3) men's use of physical intimate partner violence, measured as ever having perpetrated one or more of the following 5 actions: *slapped or thrown something at her that could hurt her*; *pushed, cornered, or pulled your partner's hair*; *hit your partner with a fist or with something else that could hurt her*; *kicked, dragged, beaten your partne*r; *choked or burned your partner on purpose*; 4) Condom use with a primary partner, defined as using a condom at last sex with a main partner; 5) Condom use with a secondary partner, defined as using a condom at last sex with someone other than the main partner; and 6) Contraceptive use, defined as currently using any modern method (such as male condoms, female condoms, intra-uterine device (IUD), injectables, pills or implants) to delay or prevent pregnancy.

Results

Sample characteristics

Adolescents in the sample had a mean age of 17.2 (SD = 1.36) for adolescent men and 16.8 (SD = 1.37) for adolescent women. Only 3 percent of males and 13 percent of females reported being married or living with a partner, and an additional 22 percent of males and females were in a relationship but not cohabitating. Highest level of education completed was primary or less for 56 percent of adolescent men and 60 percent of adolescent women. Approximately half of the men (50 percent) and women (55 percent) had been employed in the last 3 months prior to the survey.

Factor Analysis

Prior to conducting the exploratory factor analysis, the suitability of the data for factor analysis was assessed. To assess the factorability of the data, Pearson correlations were calculated to determine the intercorrelations for each variable. Inspection of the correlation matrix showed that all 12 items variables had at least one correlation coefficient greater than 0.3 in both men's and women's data, which justifies comprising the data into factors (Tabachnick & Fidell, 2013). Additionally, the overall Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.8 for the men's data and 0.8 for the women's data, which shows acceptable suitability for factor analysis (Kaiser, 1974).

Initially, an exploratory factor analysis using principal axis factoring method was conducted with the 12 items using the adolescent men's data. The scree plot and eigenvalues indicated a two factor model that explained 60% and 32% of the total variance, respectively. Ten of the items loaded onto the first factor, with factor loadings above the threshold of 0.35 for all items (Stevens, 1992). The second factor contained only two times that were conceptually related to attitudes around homosexuality *("I would never have a gay friend"* and *"I would be ashamed if I had a homosexual son"*); a finding that is consistent with previous studies in the region (Shattuck et al., 2013). According to the interpretability criterion, two is an insufficient number of items loading on a factor to warrant retaining said factor (Rummel, 1977). Therefore, these two items – and thus the second factor – were excluded from further analysis.

Using the remaining 10 items, we re-ran the analysis restricting it to one factor using a maximum likelihood estimation. All items had factor loadings above 0.35 in the men's data (see Table 1). The same process was followed with women's data; however not all items had factor loadings above 0.35 – one item *"I think a man needs more than one sexual partner even if they already have a partner" had a factor loading of only 0.26* (see Table 1). Therefore, while the Adolescent Men's Tanzania gender attitudes scale consists of 10-items; the Adolescent Women's Tanzania gender attitudes scale consists of 9-items only.[3]

Table 1. Pattern Matrix (factor loadings) for inequitable gender attitudes – adolescent men (n = 324) and adolescent women (n= 303)

Items	Adolescent men	Adolescent women
I think that a man should have the final word in decisions in the home.	0.4712*	0.6418*
I believe that a woman's most important role is to take care of her home and cook for her family.	0.4861*	0.4983*
I believe that a woman should tolerate violence to keep her family together.	0.5257*	0.7147*
I think there are times when a woman deserves to be beaten.	0.5575*	0.481*
I think a man needs more than one sexual partner, even if he already has a partner.	0.5580*	0.2622
I think it is shameful when men engage in caring for children or other domestic work.	0.5799*	0.674*
It is a woman's, not a man's responsibility to avoid getting pregnant.	0.5867*	0.3894*
I think violence between a husband and a wife is a private matter and others should not interfere.	0.5932*	0.5397*
I think changing diapers, giving baths, feeding children are the mother's responsibility.	0.6125*	0.625*
A woman does not have the right to challenge her man's opinions and decisions.	0.6382*	0.4366*

* Factor loading is above acceptability threshold of 0.35.
Note: Factor loadings are presented for analysis without imputation for missing values.

The scale contained items addressing the range of domains that were originally included, such as attitudes around gender roles, sexual relationships, and violence. As noted, attitudes around homosexuality seemed to operate differently in this sample, did not hang together with the rest of items in the factor, and were therefore removed from the final factor solution.

Cronbach's alphas for the resulting scales surpassed the minimum standard for reliability, with an alpha of 0.77 for adolescent men and 0.76 for adolescent women (Nunnally and Bernstein 1994). Adolescent men had a mean score of 1.60 (SD = 0.35) while women had a mean score of 1.68 (SD = 0.40) on the gender attitude measure.

Associations between gender attitude scale scores and related variables

Construct validity for the measure was assessed by testing the associations between the gender attitudes scale and variables hypothesized or previously shown to be related to gender

[3] Note that in the IMAGES Tanzania report, for consistency, we used the 10 item gender attitudes measure for analysis of all populations.

attitudes. These include level of education and urban/rural residence, men's use of physical intimate partner violence, condom use, and modern contraception use, as shown in Table 2.

Higher levels of education and urban residence were significantly associated with higher gender attitude scores, reflecting more equitable attitudes, for both adolescent men and women. A significant association was also detected between less equitable gender attitudes (lower scale scores) and men's use of physical intimate partner violence.

Gender attitude scale scores were not significantly associated with condom use at last sex (with either a main partner or a secondary partner), or with modern contraceptive use for either men nor women.

Table 2: Association between gender attitude scale scores and related variables

	Adolescent men		Adolescent women	
	%	**Mean gender attitude scale score (Standard Deviation)**	**%**	**Mean gender attitude scale score (Standard Deviation)**
Education				
No formal education	4.5%	1.44 (0.34)*	3.8%	1.54 (0.40)*
Primary	51.9%	1.49 (0.34)*	56.6%	1.52 (0.40)*
Secondary	43.3%	1.76 (0.31)*	39.9%	1.77 (0.41)*
Residence				
Urban	39.4%	1.75 (0.32)*	39.3%	1.80 (0.36)*
Rural	60.6%	1.51 (0.34)*	60.7%	1.51 (0.42)*
Physical IPV				
Ever used	9.1%	1.37 (0.12)†	n/a	n/a
Never used	90.9%	1.59 (0.03) †	n/a	n/a
Condom use last sex (main partner)				
Used	43.1%	1.57 (0.38)	31.5%	1.58 (0.33)
Did not use	56.9%	1.53 (0.40)	68.5%	1.53 (0.41)
Condom use last sex (secondary partner)[1]				
Used	63.5%	1.37 (0.41)	13.0%	1.62 (0.48)
Did not use	36.5%	1.52 (0.41)	87.0%	1.64 (0.39)
Modern contraception				
Current use	33.9%	1.59 (0.38)	31.6%	1.50 (0.36)
Current non-use	66.1%	1.52 (0.39)	68.8%	1.56 (0.40)

[1]Please note that a relatively small number of respondents: 52 men and 54 women reported having a secondary partner in the past 12 months.
*Difference significant at $p < 0.05$ level
† Difference marginally significant ($p = 0.058$)

Discussion

This brief summarizes the adaptation and testing of a short gender attitudes measure for adolescent men and women, as part of the IMAGES study in Tanzania. We administered an

adapted version of the GEM scale to adolescents ages 15-19 in five regions across Tanzania, and conducted an exploratory factor analysis to construct a scale. The final scale, composed of 10 items for men and 9 items of women, includes questions across several domains of gender and masculinities included in the original GEM scale, including gendered household roles, violence, reproductive health and sexuality, and power dynamics. The new scale exhibited acceptable reliability (as measured by Cronbach's alpha) and construct validity. As has been shown consistently across other countries, adolescent women had a slightly more equitable attitudes, as did more educated and urban men and women. Higher scale scores – denoting more equitable attitudes – were associated with men's use of intimate partner violence. Unlike other studies using the GEM scale in the context of interventions, no significant associations were found with sexual and reproductive health behaviors, including condom use and use of modern contraceptives. This may have to do with the relatively small sample of sexually active adolescents. It may also be due to the inclusion of fewer items related to sexuality in the Tanzania version as compared to other GEM scale adaptations, and, more importantly, a complex relationship between equitable attitudes and these behaviors. Additional research is needed to better understand the link between equitable attitudes, social norms, and sexual and reproductive health behaviors among Tanzanian youth, and to validate this adapted scale in a new sample.

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