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# Experienced Sex-Work Stigma in Male and Female Sex Workers in Kenya: Development and Validation of a Scale

Emmanuel A. Oga
RTI International, Rockville, Maryland

John Kraemer
RTI International, Washington DC, and Georgetown University

Christin Stewart
RTI International, Research Triangle Park, North Carolina

David Mbote
Nairobi, Kenya

Stella Njuguna
Kenya Medical Research Institute, Nairobi, Kenya

Melissa Stockton
University of North Carolina, Chapel Hill

Laura Nyblade
RTI International, Washington, DC

Sex work stigma can negatively impact health care utilization by sex workers, including utilization of services for HIV prevention and treatment. It is important to measure and address sex work stigma to improve access and retention in HIV and other health services, yet a gap remains in the literature on sex work stigma. This may in part be due to lack of validated sex work stigma measurement instruments. We developed a set of 26 items on experienced stigma, identified from extant research, encompassing various components and sources of sex work stigma (stigma from family, community, health care workers, and police). We then tested items in a population of 729 male and female sex workers in Kenya, recruited from health facilities in 4 sites—Nairobi, Busia, Homabay, and Kitui. Confirmatory factor analysis was used to test and establish a conceptually and statistically valid scale for measuring experienced sex work stigma. The confirmatory factor analysis supported a 4-factor experienced Stigma Scale ($\chi^2$ $p < .001$; root mean square error of approximation = 0.06; comparative fit index = 0.93; and standardized root-mean-square residual = 0.05). The final 19-item scale included 4 subscales: health care worker stigma (7 items), community-level stigma (3 items), family-level stigma (4 items), and police/law enforcement–related stigma (5 items); the Sex Work Experienced Stigma Scale demonstrated good convergent, discriminant, and known-group validity as well as excellent internal consistency (Cronbach's alpha = .93). Given the demonstrated

Emmanuel A. Oga, Center for Applied Public Health Research, RTI International, Rockville, Maryland; John Kraemer, Global Health Division, International Development Group, RTI International, Washington DC, and Department of Health Systems Administration, Georgetown University; Christin Stewart, Global Health Division, International Development Group, RTI International, Research Triangle Park, North Carolina; David Mbote, Independent Consultant, Nairobi, Kenya; Stella Njuguna, Kenya Medical Research Institute, Nairobi, Kenya; Melissa Stockton, Gillings School of Public Health, University of North Carolina, Chapel Hill; Laura Nyblade, Global Health Division, International Development Group, RTI International, Washington DC.

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Correspondence concerning this article should be addressed to Emmanuel A. Oga, RTI International, 6110 Executive Boulevard, Suite 900, Rockville, MD 20852. E-mail: eoga@rti.org; imanueloga@gmail.com

validity and reliability of our scale, it can be used to assess sex work stigma and inform interventions to address stigma.

*Keywords:* stigma, sex work, HIV, validation



Sex workers face a double threat of stigma—one arising from prejudice against their identities, occupations, or behaviors as sex workers and the other from the association of sex work with the transmission of HIV. Male sex workers (MSWs) experience an additional source of stigma because of the link between male sex work and men who have sex with men. Thus, female sex workers (FSWs) and MSWs face intersectional stigma associated with sex work itself, HIV, and same-sex behavior (Baral et al., 2012; van Griensven, 2007). The World Health Organization considers sex workers to be a key population with respect to the epidemiology of HIV, which demonstrates the public health link between sex work and HIV (World Health Organization, 2008). This (albeit legitimate) association of sex work with HIV inadvertently intensifies the stigma associated with sex work (and HIV) (Scambler & Paoli, 2008). Sex workers' experience of stigma is a well-documented and acknowledged historical reality (Benoit, Jansson, Smith, & Flagg, 2018; Scambler, 2007; Scambler et al., 2008). In many climes, sex work is still criminalized, potentially lending a sense of legitimacy to the stigmatizing forces encountered by sex workers (Platt et al., 2018; Vanwesenbeeck, 2017). Sex work stigma can be all encompassing, ranging from interactions with the community, family members, health care workers, and the police, resulting in a perpetuated state of vulnerability (Wong, Holroyd, & Bingham, 2011).

Female and male sex workers are considered key populations and have a well-documented high burden of HIV incidence and transmission, and MSWs often face additional risks (Baral et al., 2012; Baral et al., 2015). Additionally, sex workers face a host of other adverse conditions: physical and sexual violence; harassment from law enforcement, community, family, clients and intimate partners; and discrimination within the health care system (Decker et al., 2015; Shannon et al., 2018). These challenges faced by sex workers, often manifesting through stigma and discrimination, have been recognized as significant barriers to accessing necessary health care, including HIV prevention and treatment, and thus represent a serious human rights and public health concern (Beyrer et al., 2015; Lancaster, Cernigliaro, Zulliger, & Fleming, 2016; Lazarus et al., 2012; Nyblade et al., 2017; Shannon et al., 2015). Given the potential strong relationship between sex work stigma and poor health outcomes, there is recognition of the critical need to improve understanding of sex work stigma and its global impact on the health outcomes of sex workers (Lazarus et al., 2012).

Stigma is a process in which labeling, stereotyping, separation, status loss, and discrimination occur together in the context of social, political, and economic structures that allow for power imbalance and oppression (Link & Phelan, 2001). This holistic definition of stigma recognizes the complexity of the social processes and circumstances in which stigma operates. Many health conditions and human characteristics such as sexual orientation, gender identity, work status, ethnicity, and disability (to mention a few) are stigmatized, often contributing to poor health outcomes. For example, Weiss, Ramakrishna, and Somma (2006) describe stigmatization based on disease status as "social disqualification of individuals and populations who are identified with particular health problems," potentially creating a barrier to disease detection, prevention (Weiss et al., 2006, p. 277), and treatment of otherwise manageable conditions. The deleterious impact of such stigma is well established and may discourage health care seeking and utilization among populations of interest (Jackson-Best & Edwards, 2018; Nyblade et al., 2017).

According to the framework put forth by Earnshaw, Smith, Chaudoir, Amico, and Copenhaver (2013), stigma can be internalized, anticipated, and enacted (experienced). According to this framework, internalized stigma involves endorsing negative feelings and beliefs associated with a condition; anticipated stigma refers to the prospective anticipation of stigma from others; and experienced stigma refers to past or present experience of stigma. Furthermore, experienced or enacted stigma is discriminatory behavior directed at persons with stigmatized conditions or belonging to stigmatized groups, including but not limited to physical and verbal abuse, denial of access to health, education, and employment (Catona, Greene, Magsamen-Conrad, & Carpenter, 2016). This analysis focuses on experienced sex work stigma.

To date, there are relatively few data collected on the experiences of sex work stigma, especially in relation to other stigmas, such as stigma associated with HIV or mental health (Logie, James, Tharao, & Loutfy, 2011). This dearth of information on experienced sex work stigma may be in part because of a lack of validated measures for sex work stigma (Fitzgerald-Husek et al., 2017). As elaborated heretofore, sex work stigma has a fundamental impact on behavior and health in sex workers. It is important to conduct the present study to develop and validate an instrument for measuring experienced sex work stigma among sex workers and to quantify the prevalence and source of experienced sex work stigma and provide data necessary for program design and advocacy. Our attention is drawn to sex workers in sub-Saharan Africa, particularly Kenya, where research on sex work stigma is sparse and no formal instrument has been validated for measuring stigma in this population. Furthermore, our interest in stigma in sub-Saharan African sex workers is hinged on the fact that this population manifests some of the highest HIV prevalence rates in the world (Beyrer et al., 2015; Shannon et al., 2015). This work contributes to the literature in two ways: (a) It provides data on the source and prevalence of stigma within a Kenyan sex worker population and (b) it provides a validated scale to measure experienced sex work stigma. The aim of our study, therefore, is to conceptualize and validate an instrument for measuring experienced sex work stigma in male and female sex workers while describing the prevalence and common factors associated with sex work stigma in four sites in Kenya.

## Method

We conducted a cross-sectional survey utilizing snowball sampling to recruit 497 FSWs and 232 MSWs in four locations in Kenya—Nairobi, Busia, Homabay, and Kitui. These four sites include rural, urban, and transit domains. Eligible participants had to be aged 18 years or older, acquire most of their income from sex work, and be a resident of Nairobi, Busia, Homabay, or Kitui for the 6 months preceding the study. Individuals deemed unable to provide informed consent were excluded from participation, as were persons visibly under the influence of drugs, including alcohol, during screening and anyone who had already participated in the study. Recruitment commenced with 40 MSW and 96 FSW seeds across all sites; these respondents were each given four unique coupons to share with other sex workers who they thought may be interested in study participation. Those who had received the recruitment coupon from a stranger (that is, from a person unaffiliated with the study) or did not have a valid coupon were excluded from participation. For MSWs, we did not restrict eligibility based on whether clients were male or female, but the locales of sampling made it unlikely we would sample MSWs with exclusively female clientele. Participants were given 500 Kenyan shillings (slightly more than $5 USD) for their time participating in the study. The methodology for this study has been previously published (Nyblade et al., 2015; Nyblade et al., 2017). Informed consent was obtained from each participant, and we adhered to all ethical guidelines as required for the conduct of research involving human participants. The study was approved by the relevant institutional review boards.

### Scale Development and Initial Validation

We commenced the development of the Sex Work Experienced Stigma Scale (SWESS) by conducting a comprehensive review of the stigma literature and subsequently adapted experienced stigma items from stigma scales developed for different populations and settings (Holzemer et al., 2007; Kalichman et al., 2009; Kalichman et al., 2005; Nyblade et al., 2005; Steward, Bharat, Ramakrishna, Heylen, & Ekstrand, 2013; Visser, Kershaw, Makin, & Forsyth, 2008). Based on the review of literature, the experience of the research team and other researchers, we created a pool of 26 items encompassing statements regarding experienced sex work stigma from different settings and sources—health care worker stigma, community-level stigma, family-level stigma, and police/law enforcement–related stigma. Items are shown in Table 2 and were preceded by an explanation that the questions pertained "to your personal experiences with stigma and discrimination." Response options were on a 5-point scale, from 0 to 4, corresponding to the frequency with which respondents reported experiencing each stigma manifestation.

After stigma items were chosen for inclusion, they were reviewed independently by stigma experts in the research team (L.N. and D.M.) for face and content validity. We sought the review of local partners (including sex worker care organizations in each of the study locations) for feedback, after which we tested the SWESS in a small sample of research participants during research staff training and reviewed responses. We made minor changes to the SWESS after initial testing then finalized it.

### Participants and Survey Procedures

We administered the SWESS to a study sample of 729, of which 232 were MSWs and 497 were FSWs. Data were collected in January 2015 through face-to-face interviews in a private space in the offices of study partner sex worker organizations in each site, after participants provided informed consent. Third-party interviewers with appropriate prior experience and training were hired and further trained. In addition to conducting the interviews, these interviewers worked with site study coordinators to track coupons and recruitment progress in a recruitment log. Analyses were conducted on the pooled sample of MSWs and FSWs because preliminary analysis of the candidate items found that their prevalence was similar for MSWs and FSWs (Nyblade et al., 2015) and because we did not have a theoretical expectation that sex would moderate the extent to which underlying constructs manifest as particular items.

### Construct Validity

**Confirmatory factor analysis.** Because our study is founded on theoretical precedents for experienced stigma, we conducted a confirmatory factor analysis (CFA) using structural equation modeling, rather than an exploratory factor analysis, to examine the SWESS and test the prespecified constructs for model fit and confirm whether our hypothesized model is supported by the data we obtained. The exploratory factor analysis is most appropriate when there is limited prior theoretical understanding of the subject at hand or when item reduction is a priority.

In the CFA, item responses were assigned numerical equivalents and treated as interval data (items scored: *never* = 0; *not in last 12 months but have before* = 1; *once in the last 12 months* = 2; *a few times in the last 12 months* = 3; and *often in the last 12 months* = 4). A factor loading (standardized coefficients) of $\geq 0.60$ was utilized for retention. The CFA commenced with a four-factor and 26-item model as starting point. After evaluating our initial four-factor model, we respecified our models, including a process of selectively eliminating items with low standardized factor loadings or reassigning items across constructs based on within- and cross-factor correlations and then assessed the effect on model fit. We finally retained items with standardized factor loadings $\geq 0.60$.

To assess model goodness of fit, we computed several fit indices: Satorra-Bentler scaled $\chi^2$, root mean square error of approximation (RMSEA), comparative fit index (CFI), and standardized root-mean-square residual (SRMR) goodness-of-fit statistics (Kline, 2015). The $\chi^2$ goodness-of-fit statistic represents the difference between the expected and observed covariance matrices, and a value close to zero indicates little difference, with a probability value greater than 0.05 (Hu & Bentler, 1999). However, the $\chi^2$ statistic needs to be interpreted with caution, particularly with larger samples sizes ($n > 300$) (Jöreskog & Sörbom, 1984) because the significance levels of the $\chi^2$ test are sensitive to sample size (Kline, 2015). The second fit index computed, the RMSEA, represents the residuals in the model. RMSEA values that are at or less than 0.06 were considered desirable (Hu et al., 1999). The third fit index, the CFI, compares the departure from a close fit of the hypothesized model from the null model (Kline, 2015). The CFI was considered to be indicative of a good fitting model if a value greater than 0.90 is obtained (Hu et al., 1999). Lastly, the SRMR is the square root of the value obtained from subtracting the

residuals of the sample covariance matrix from the hypothesized model (Hu et al., 1999). SRMRs ≤0.05 were considered acceptable (Hu et al., 1999).

## Convergent, Discriminant, and Known-Group Validity

To further assess construct validity, we assessed convergent and discriminant validity. Convergent validity measures the degree to which two constructs that we hypothesize are theoretically related are in fact related. Whereas discriminant validity measures the degree to which items that are thought to be not related are, in fact, unrelated. We measured convergent and discriminant validity by measuring average variance extracted (AVE) and squared correlations (SC). According to the criterion of Fornell and Larcker (1981), convergent validity can be assessed by the average variance extracted by the constructs. AVE assesses the variance captured by a construct rather than from measurement error. AVE values above 0.5 were considered acceptable and providing evidence of convergent validity, whereas for discriminant validity, we required the AVE of any two constructs be greater than SC between the two constructs.

In addition, known-group validity was assessed by conducting by-group comparisons to evaluate whether patterns of experienced sex-work stigma reported on the SWESS were in keeping with established knowledge. This helps to rule out measures that poorly discriminate between groups with known differences.

## Reliability

We computed Cronbach's alphas to assess the internal consistency of items.

# Results

## Participant Characteristics

The participants had a mean (*SD*) age of 27.9 (6.3) years. About half the sample (46%) had only a primary education or less, were single/never married (53%), and resident in Nairobi (45%). Participants were mostly female (68%) and HIV negative (66%) (see Table 1). Participants, on average, had been engaged in sex work for about 5 years, mean (*SD*) = 5.4 (4.6), and had a median income of 1,000 Kenyan shillings (about $11 USD at the time) per week.

## Prevalence of Experienced Stigma

Of the total sample, 70.2% (512/729) reported ever experiencing health care worker stigma; similarly, for community-level stigma, 87.3% (629/729); family level stigma, 60.2% (439/729); and police and law enforcement stigma, 70.9% (517/729). Most participants, 92.9% (677/729), reported ever experiencing at least one kind of experienced sex work stigma (table not provided).

## Reliability

The final scale included 19 items, with excellent internal consistency (Cronbach's alpha = .93) and four subscales—health care worker stigma (seven items, $\alpha = .88$), community-level stigma (six items, $\alpha = .75$), family level stigma (four items, $\alpha = .83$), and police/law enforcement-related stigma (five items, $\alpha = .86$).

Table 1
*Sample Characteristics (n = 729)*

| Characteristics | Values |
|---|---|
| Age in years, mean (*SD*) | 27.9 (6.3) |
| Sex, *n* (%) | |
| Female | 497 (68.2) |
| Male | 232 (31.8) |
| Education, *n* (%) | |
| Primary school or less | 334 (46.0) |
| Secondary school | 315 (43.4) |
| Tertiary | 77 (10.6) |
| Income (weekly), median (Q1–Q3) | 1,000 Ksh (800–2,000) |
| Marital status, *n* (%) | |
| Single/never married | 384 (53.0) |
| Married | 35 (4.8) |
| Divorced | 219 (30.2) |
| Widowed | 42 (5.8) |
| Partner | 45 (6.21) |
| Years in sex work, mean (*SD*) | 5.4 (4.6) |
| Residence, *n* (%) | |
| Nairobi | 331 (45.4) |
| Busia | 155 (21.3) |
| Kitui | 76 (10.4) |
| Homabay | 167 (22.9) |
| Days of sex work per week, mean (*SD*) | 4.4 (1.8) |
| HIV status (self-reported), *n* (%) | |
| Positive | 172 (23.6) |
| Negative | 484 (66.4) |
| No response | 73 (10.0) |

## Construct Validity

**Confirmatory factor analysis.** In the CFA, a one-factor model (Model 1) was initially evaluated, resulting in the following fit indices: RMSEA = 0.09, SRMR = 0.06, CFI = 0.79, $\chi^2$ = 1891 and $\chi^2$ $p < .001$. Our prehypothesized four-factor model (Model 2) fit indices were: RMSEA = 0.06, CFI = 0.91, SRMR = 0.04, $\chi^2 = 996$, and $\chi^2$ $p < .001$. However, items in Model 2 were selectively eliminated or reassigned to other constructs based on low standardized factor loadings (<0.50) and suboptimal within- and cross-factor correlations. An improved model (Model 3) was achieved (RMSEA = 0.06, CFI = 0.93, SRMR = 0.05, $\chi^2 = 537$, and $\chi^2$ $p < .001$). Table 2 shows a description of the scale and subscales; individual survey items are also listed with standardized factor loadings. We identified Model 3 as the best fit for our data in terms of improved CFI and lower $\chi^2$ value (and better convergent and discriminant validity).

The CFA model fit indices are displayed in Table 4 for the one-factor model and both four-factor models. Based on these items, an overall stigma score, alongside separate subscale scores, were generated, resulting in an additive index, whereby responses were coded as 0, 1, 2, 3, or 4 and summed for a total score for each subscale.

## Convergent and Discriminant Validity

The SWESS shows evidence of convergent and discriminant validity. The AVE estimates for the constructs—health care worker stigma (0.51), community-level stigma (0.53), family-level stigma (0.56), and law enforcement stigma (0.57) – demonstrated acceptable convergent validity of the SWESS, while the pairwise AVE-SC—comparisons (also in Table 3) demonstrated discriminant validity.

Table 2
*Confirmatory Factor Analysis Results for the Two Four-Factor Models*

| X | Item | Prehypothesized four-factor model: Standardized factor loading | Prehypothesized four-factor model: Standard error (*SE*) | Final four-factor model: Standardized factor loading | Final four-factor model: Standard error (*SE*) |
|---|---|---|---|---|---|
| | Health care worker stigma | | | | |
| | The next set of questions is about your experiences at any type of health care facility. Have you ever had any of the following happen to you? | | | | |
| X1 | You were denied health services | .67 | .03 | .67 | .03 |
| X2 | You were discharged or asked to leave while still needing care | .62 | .03 | .62 | .03 |
| X3 | At the hospital/clinic, you were made to wait longer than other patients | .77 | .02 | .78 | .02 |
| X4 | You were not treated as well compared with patients who were not sex workers | .78 | .02 | .78 | .02 |
| X5 | A health care worker gossiped or spoke badly about you | .79 | .02 | .79 | .02 |
| X6 | A health care worker disclosed that you sell sex without your consent | .75 | .02 | .75 | .02 |
| X7 | A health care worker introduced religious or morality issues | .60 | .03 | .59 | .03 |
| | Community-level stigma | | | | |
| | Have the following ever happened to you*?* | | | | |
| X8 | Someone spoke badly or gossiped about you | .56 | .02 | .76 | .02 |
| X9 | You were verbally assaulted, harassed, or threatened | .61 | .02 | .80 | .02 |
| X10 | You were physically hurt (pushed, shoved, slapped, hit, kicked, choked, or otherwise physically hurt) | .64 | .02 | Dropped | — |
| X11 | You were excluded from community events, such as weddings or funerals | .75 | .02 | Dropped | — |
| X12 | You were excluded from religious activities or places of worship | .67 | .03 | Dropped | — |
| X13 | You were rejected by my friends | .67 | .02 | .61 | .03 |
| X14 | You were blackmailed | .63 | .02 | Dropped | — |
| X15 | You were raped (forced to have sex when you did not want to) | .49 | .03 | Dropped | — |
| X16 | You were forced to change your place of residence or were unable to rent accommodation | .59 | .03 | Dropped | — |
| | Family-level stigma | | | | |
| | Have the following ever happened to you*?* | | | | |
| X17 | Your child was dismissed, suspended, or prevented from attending an educational institution | .40 | .04 | Dropped | — |
| X18 | You were excluded from family gatherings (e.g., cooking, eating together, sleeping in the same room) | .82 | .02 | .81 | .02 |
| X19 | You were disowned by or lost inheritance from family members | .75 | .02 | .74 | .02 |
| X20 | You were verbally assaulted, harassed, or threatened by family members | .77 | .02 | .79 | .02 |
| X21 | You were physically hurt (pushed, shoved, slapped, hit, kicked, choked, or otherwise physically hurt) by family | .64 | .03 | .64 | .03 |
| | Police/law enforcement-related stigma | | | | |
| | Have the following ever happened to you*?* | | | | |
| X22 | You were verbally assaulted, harassed, or threatened by police | .83 | .01 | .84 | .01 |
| X23 | You were physically hurt (pushed, shoved, slapped, hit, kicked, choked, or otherwise physically hurt) by police | .81 | .02 | .81 | .02 |
| X24 | Police confiscated or destroyed your condoms | .71 | .02 | .71 | .02 |
| X25 | You were arrested for selling sex | .71 | .02 | .71 | .02 |
| X26 | A police worker refused to protect you or take a statement from you | .69 | .02 | .68 | .02 |

*Note.* Item options and scoring: *never* = 0; *not in last 12 months but have before* = 1; *once in the last 12 months* = 2; *a few times in the last 12 months* = 3; *often in the last 12 months* = 4.

## Known-Group Validity

In the known-group analysis (see Table 5), mean scores (*SD*) for all experienced sex work stigma measures (health care worker stigma, community-level stigma, family-level stigma, and police/law enforcement–related stigma) were significantly higher among female sex workers (vs. male). Similarly, all stigma measures were significantly higher among sex workers who reported depression versus those who did not; sex workers (SWs) with only a primary education or less versus SWs with secondary or tertiary education; and SWs who reported health care avoidance or delay in the past year versus those who did not.

## Discussion

Our study conceptualized and validated the SWESS to measure experienced sex work stigma, assessing validity and reliability of the scale. The 19-item SWESS measures four experienced stigma domains based on the source of stigma: health care workers, communities, families, and law enforcement. The scale demonstrated good face, content, and construct validity. Reliability (internal consistency) was good for all subscales and the overall scale. The SWESS demonstrated good model fit statistics, good standardized factor loadings, and good interitem and between-scale correlation coefficients. The stigma subscales, as conceptualized by source, align with prior work

Table 3
*Convergent and Discriminant Validity Assessment*

| | Squared correlations among latent variables | | | | |
|---|---|---|---|---|---|
| | Factor 1: health care worker stigma | Factor 2: community-level stigma | Factor 3: family-level stigma | Factor 4: law enforcement stigma | Average variance extracted |
| Factor1 | 1 | | | | .51 |
| Factor2 | .385 | 1 | | | .53 |
| Factor3 | .512 | .423 | 1 | | .56 |
| Factor4 | .489 | .35 | .453 | 1 | .57 |



and theoretical frameworks on the sources of experienced stigma among sex workers (Wong et al., 2011).

Known-group comparisons demonstrated further evidence of construct validity for the SWESS. The assessment of scale performance across groups in which differences in stigma is well documented is a way to establish construct validity. Experienced sex work stigma from different sources were reported more often by female compared with male sex workers, those who reported depression, those who had less education, and those who reported health care avoidance or delay. These findings compare favorably with prior studies on the experience of stigma in sex workers (Baral et al., 2014; Baral et al., 2015; Hong et al., 2010; King, Maman, Dudina, Moracco, & Bowling, 2017; Liu et al., 2011; Nyblade et al., 2015; Nyblade et al., 2017; Zhang, Li, Hong, Su, & Zhou, 2014). Furthermore, the SWESS demonstrates appropriate convergent and discriminant validity, with each construct correlating more strongly with items within its own construct than with items in other constructs, providing further evidence of good construct validity.

Sex workers in our study reported a high level of having ever experienced sex work stigma from at least one source (92.9%), with the single highest source being community level (86.3%), followed by law enforcement (70.9%), health care workers (70.2%), and family level (60.2%). These findings align with prior studies that show a high burden of stigma in sex workers (Baral et al., 2014; Tun, de Mello, Pinho, Chinaglia, & Diaz, 2008).

Our study is not without limitations. This study utilizes a snowball sample of Kenyan sex workers, and thus, generalizability of the results beyond this sample is limited. Although results may not be generalizable to other sex worker populations outside Kenya in which presentations of sex work stigma may differ, our study recruited a diverse sample of sex workers from four differing locations in Kenya. More investigations are needed to validate the SWESS in other populations across the globe to potentially address the different cultural contexts in which sex work stigma operates. Additionally, our sample of MSWs was much smaller than FSWs; we therefore did not have enough power to assess construct validity separately by gender and cannot assess whether gender may be a moderator.

It would be valuable for future research to extend this study in several ways. First, this study is unable to examine intersecting identities—that is, sex, men who have sex with men status, sex work, poverty—for lack of sample size. Because intersecting stigma is important for both social scientific and intervention design reasons, substantially larger studies to permit its examination are needed. Second, disclosure's role in the experience of stigma cannot be elucidated via cross-sectional data because the relationship between disclosure and experienced stigma is bidirectional. Longitudinal studies are required to better understand these relationships. We do not expect either of these issues to substantially affect the extent to which experienced stigma constructs manifest as specific items (the purpose of this study), but both may be important for studies assessing relationships between stigma and health or social outcomes. Third, this scale is feasible for research purposes, but it may be too lengthy for some programmatic purposes; additional research to identify the minimum set of items that perform reasonably well would likely encourage uptake in surveys to help design or evaluate sex work stigma interventions.

Our development and validation of the SWESS is notable because, to our knowledge, it is the first to conduct an expansive conceptualization and validation of experienced sex work stigma to include stigma from different sources. Improved measurement of sex work stigma is important for guiding effective responses to health conditions that disproportionately affect sex workers such as HIV (Fitzgerald-Husek et al., 2017). Given the high HIV prevalence among male and female sex workers in many settings, it is important to measure and address stigma experienced by sex workers to address a key barrier to the access and utilization of HIV prevention and treatment services (Baral et al., 2012). Populations that are ostracized and criminalized, including sex workers, often carry a higher burden of HIV than the general population; as an example, MSWs have a 19 times greater risk of contracting HIV than the general population; similarly, FSWs are at 13.5 times greater risk than other women of reproductive age (Baral et al., 2012; Beyrer et al., 2012). In sub-Saharan Africa, including Kenya, from which our study sample is drawn, sex work is criminalized, exposing sex workers to occupational health and safety risks including elevated risk of HIV and other sexually transmitted diseases (Scorgie et al., 2011).

Table 4
*Goodness-of-Fit Indices for Alternative Models in Overall Sample ($n = 729$)*

| Model[a] | $\chi^2$ (*df*) | $\chi^2/df$ | RMSEA | SRMR | CFI |
|---|---|---|---|---|---|
| Model 1 | 1891 (299) | 6.3 | .09 | .06 | .79 |
| Model 2 | 996 (293) | 3.4 | .06 | .04 | .91 |
| Model 3 | 537 (146) | 3.7 | .06 | .05 | .93 |

*Note.* RMSEA = root mean squared error of approximation; CFI = comparative fit index; SRMR = standardized root mean square residual.
[a] Satorra-Bentler correction.

Table 5
*Known-Group Analysis of Measures of Experienced Sex Work Stigma by Sex, Depression, Education and Health Care Utilization, Mean (SD)*

| Variables | Health care worker | Community level | Family level | Law enforcement related |
|---|---|---|---|---|
| Sex | | | | |
| Female | 9.5 (8.6) | 7.8 (3.7) | 5.6 (5.2) | 8.3 (6.7) |
| Male | 5.3 (6.5) | 5.3 (4.0) | 2.0 (3.7) | 3.9 (5.1) |
| *p* value | <.001** | <.001** | <.001** | <.001** |
| Depression (PHQ-9 scores) | | | | |
| Minimal (0–4) | 4.7 (7.1) | 5.4 (4.2) | 2.5 (4.3) | 3.9 (5.4) |
| Mild (5–9) | 7.7 (7.5) | 7.2 (3.7) | 4.3 (4.8) | 6.7 (6.0) |
| Moderate (10–14) | 10.9 (8.0) | 8.0 (3.5) | 5.5 (4.8) | 9.2 (6.3) |
| Moderately severe (15–19) | 13.0 (8.9) | 8.4 (3.8) | 8.2(5.1) | 10.9 (7.8) |
| Severe (20–27) | 15.1 (8.8) | 9.3 (3.5) | 9.2 (5.3) | 12.3 (7.0) |
| *p* value | <.001** | <.001** | <.001** | <.001** |
| Education | | | | |
| Primary or less | 9.6 (8.9) | 7.7 (3.9) | 5.8 (5.4) | 8.1 (7.1) |
| Secondary | 6.7 (7.3) | 6.4 (4.1) | 3.4 (4.4) | 6.0 (6.0) |
| Tertiary | 7.6 (7.3) | 6.8 (3.7) | 3.5 (4.9) | 5.5 (5.6) |
| *p* value | <.001** | <.001** | <.001** | <.001** |
| Health care avoidance or delayed utilization in the past year | | | | |
| Yes | 8.6 (8.3) | 7.3 (3.9) | 4.7 (5.1) | 7.2 (6.7) |
| No | 6.6 (7.7) | 6.0 (4.2) | 3.8 (4.9) | 5.6 (6.0) |
| *p* value | .01* | < .001** | .06 | .01* |
| Range of scores | 0–28 | 0–12 | 0–16 | 0–20 |

* $p \leq .05$. ** $p < .001$.

Given the growing recognition of the importance of measuring stigma toward key populations and its relationship to the HIV treatment cascade (Risher, Mayer, & Beyrer, 2015), our work is a timely and valuable resource to support design and implementation of interventions to mitigate stigma for high-risk populations such as sex workers.

In conclusion, our study supported a four-factor, 19-item solution for the SWESS (sex work experienced stigma scale), with good face, content, and construct validity as well as good internal consistency and can be used to assess the burden of stigma in sex workers. However, additional research is needed to develop and validate experienced stigma scales more appropriate for other populations and contexts.

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