The Impact of Occupational Stigma on the Social Networks of Older Female Sex Workers: Results from a Three-Site Egocentric Network Study in China

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To the Editor:

OCCUPATIONAL STIGMA refers to stigma affiliated with the commercial sex industry.¹ Previous studies have focused on younger female sex worker (FSW) populations; however few studies have been conducted among their older counterparts. Studies with older FSWs are warranted because (1) socio-biological differences exist between young and older FSWs, and (2) the HIV epidemic has spread among older adults in China² and in other countries.³

Previous studies have documented that the majority of HIV-infected older adults (e.g., over age 50) in China report a history of commercial sex with older FSWs aged 35 years or older.^{4,5} Older FSWs may experience more stigma because of their low socio-economic status, enduring structural inequities, and a disparate burden of familial support.⁶ The objective of this study was to investigate the associations between perceived occupational stigma and social network components among older FSWs over 35 years old.

In 2014, an egocentric network study was conducted in three cities in China (Qingdao, Hefei, and Nanning). Respondent-driven sampling (RDS) was used to recruit participants. Computer-assisted personal interviewing (CAPI) was used to aide data collection.

An eight-item measurement scale based on our previous stigma studies⁷ was constructed to assess older FSWs' perceptions of stigmatizing attitudes and/or discrimination towards sex workers (e.g., "If my family knew I was a sex worker, my family would think that I had hurt their reputation and dignity," or "If people around me knew I was a sex worker, they would exclude me"). Participant responses were ranked on a four-point scale ranging from (0) 'strongly disagree' to (3) 'strongly agree.' Scores were summed (range 0–24) and then divided by eight (averaged), with higher scores indicating greater perceived stigma (range 0.75–3.0). The Cronbach's alpha was 0.86.

The Chinese Social Network Questionnaire (CSNQ) was used to capture three network components (support, relations, and structure) in two type networks: a sexual network and a non-sexual network between ego (older FSWs) and their alters (network peers). Network support included tangible and emotional support. Tangible support was assessed

by asking older FSWs whether their alters would lend them money, take of care them if confined to bed for 2–3 weeks, and help them if they encountered a personal, family, or health problem. Emotional support was assessed similarly by asking older FSWs whether alters supported their thoughts/opinions and respected/admired them, and whether they trusted their alters enough to discuss private problems. Scores were summed for each type of support with higher scores indicating more support.

Network relations were defined as the number of relatives, friends (non-FSWs), FSW friends, clients, and gatekeepers (e.g., individuals who manage sex work establishments/venues) named in each ego's network. Trust and closeness were calculated by summing the total amount of trust and closeness in each ego's network and then dividing by the total network size for each ego.

Network structure was measured by: (1) the size of a sexual network (e.g., the number of ego's sex partners, including: husbands, boyfriends, and clients); (2) a support network (e.g., the total number of non-sex partners of an ego, including: sex worker and non-sex worker friends, family members, gatekeepers, neighbors and other relations); and (3) network density. Density is the degree of dyadic connection in the network and was computed as the total number of actual ties divided by the total number of potential ties.⁸

The prostate-specific antigen (PSA) test was used to biologically measure condom use. Presence of PSA indicates condomless sex in the past 48 h (ABAcad p30 test, Abacus Diagnostics, West Hill, CA).

Multiple linear regression was employed to assess the associations between stigma and network factors with regression coefficients (β) and their 95% confidence intervals (95% CI). SAS version 9.3 (SAS Institute, Cary, NC) was used to conduct all unweighted statistical analyses.

A total of 1245 older FSWs were recruited from the three study sites (about 400 per site). Across all study sites, the majority of participants were aged 35–44 (83.2%), received a middle school education or less (88.9%), were rural-to-urban migrants (64.9%), and did not use condoms in the past 48 h (60.5%), as indicated by the PSA test. The mean stigma score was 2.05 (standard deviation=0.36). Stigma scores

TABLE 1. CHARACTERISTICS OF NETWORK COMPONENTS: RELATIONS, STRUCTURE AND SUPPORT

	<i>Median</i>	<i>IQR^a</i>	<i>Range</i>
<i>Network relations</i>			
No. of relative alters	2	1–3	0–11
No. of friend (non-FSW) alters	1	1–2	0–6
No. of FSW alters	2	1–3	0–8
No. of client alters	1	1–2	0–5
No. of boss, mamis, or manager alters	1	1–1	0–2
Trust in alters	1.6	1.3–2	0–2
Closeness to alters	3	2.6–3.3	0–4
<i>Network structure</i>			
Support network size (no sexual relations)	3	2–5	0–18
Sex network size	1	1–2	0–6
Network density	0.5	0.3–0.8	0–1
<i>Network support</i>			
Tangible support from:			
Relative alters	13	8–20	0–82
Friend (non-FSW) alters	7	5–11	0–54
FSW alters	9	6–14	0–69
Client alters	6	4–9	0–30
Boss, mamis, or manager alters	5	3–6	0–16
Emotional support from:			
Relative alters	9	5–15	0–76
Friend (non-FSW) alters	6	4–10	0–54
FSW alters	8	5–13	0–62
Client alters	5	4–8	0–28
Boss, mamis, or manager alters	4	1–6	0–15

^aInterquartile range (IQR): 25th percentile–75th percentile.

TABLE 2. BIVARIATE AND MULTIVARIABLE ANALYSIS OF AVERAGE OCCUPATIONAL STIGMA AND SOCIAL NETWORK COMPONENTS OF OLDER FEMALE SEX WORKERS

	<i>Bivariate analysis</i>		<i>Multiple regression model^a</i>	
	<i>cβ^b</i>	<i>95% CI^d</i>	<i>aβ^c</i>	<i>95% CI</i>
Unprotected sex (verified by PSA)				
Yes	0.19	(0.09, 0.02)	0.03	(−0.14, 0.20)
No				
<i>Network relations</i>				
No. of relative alters	−0.27	(−1.84, −0.03)	0.02	(−0.40, 0.44)
No. of friend (non-FSW friend) alters	0.51	(0.04, 0.98)	0.41	(−0.06, 0.88)
No. of FSW alters	−0.70	(−1.14, −0.26)	−0.44	(−0.86, −0.01)
No. of client alters	−0.14	(−0.57, 0.28)	−0.04	(−0.47, 0.40)
No. of boss, mamis, or manager alters	−0.01	(−0.35, 0.33)	−0.15	(−0.49, 0.19)
Trust in alters	−0.03	(−0.04, −0.01)	−0.02	(−0.04, −0.01)
Closeness to alters	−0.07	(−0.15, 0.002)	−0.04	(−0.11, 0.04)
<i>Network structures</i>				
Support network size	−0.17	(−0.35, 0.01)	−0.10	(−0.28, 0.08)
Sex network size	−0.92	(−1.34, −0.50)	−0.90	(−1.32, −0.48)
Network density	−0.55	(−0.86, −0.25)	−0.45	(−0.76, −0.14)
<i>Network functions</i>				
Tangible support from:				
Relative alters	−0.31	(−0.80, 0.19)	0.01	(−0.47, 0.48)
Friend (non-FSW friend) alters	0.53	(0.004, 1.06)	0.43	(−0.10, 0.96)
FSW alters	−0.81	(−1.30, −0.32)	−0.52	(−1.00, −0.05)
Clients alters	−0.18	(−0.65, 0.29)	−0.06	(−0.54, 0.42)
Boss, mamis, or manager alters	−0.02	(−0.39, 0.36)	−0.17	(−0.55, 0.20)
Emotional support from:				
Relative alters	−0.56	(−1.04, −0.07)	−0.21	(−0.67, 0.26)
Friend (non-FSW friend) alters	0.55	(0.02, 1.07)	0.47	(−0.05, 1.00)
FSW alters	−1.00	(−1.50, −0.49)	−0.60	(−1.09, −0.11)
Client alters	−0.26	(−0.73, 0.21)	−0.13	(−0.61, 0.34)
Boss, mamis, or manager alters	−0.31	(−0.66, 0.03)	−0.40	(−0.75, −0.06)

Data in bold: $p < 0.05$.

^aAdjusted for age, education, marital status, residency, and study site; ^bcrude coefficient; ^cadjusted coefficient; ^d95% confidence interval.

were higher for those who were divorced or widowed compared to those who were single (2.07 vs. 1.95; $p \leq 0.01$) and for those who had a positive PSA test compared to those who had a negative test (2.08 vs. 2.03; $p < 0.05$).

The median support network size was 3.0 [Interquartile range (IQR) = 2–5] and the sexual network size was 1.0 (IQR = 1–2). The median tangible and emotional support scores were highest among relative and FSW alters. Relatives' median tangible and emotional support scores were 13.0 (IQR = 8–20) and 9.0 (IQR = 5–15), respectively. FSW's friends median tangible support score and the median emotional support scores were 9.0 (IQR = 6–14) and 8.0 (IQR = 5–13), respectively (Table 1).

After adjusting for age, education, marital status, and residential location (urban/rural), older FSWs who perceived more occupational stigma were *less likely* to: (1) trust their alters ($\beta = -0.02$), (2) have a larger sexual network size ($\beta = -0.90$), (3) have more dense networks ($\beta = -0.45$), (4) involve their FSW friends in the network ($\beta = -0.44$), and (5) receive tangible ($\beta = -0.52$) and emotional support ($\beta = -0.60$) from FSW friends and emotional support from gatekeepers ($\beta = -0.40$). Occupational stigma was not associated with unprotected sex (Table 2).

Older FSWs who perceived more sex work stigma may be more socially isolated and disconnected from the workplace network. Our results reveal that older FSWs who perceived more occupational stigma received less social support from their workplace network (e.g., gatekeepers and other FSWs). Additionally, they had less FSW friends, smaller sexual networks, less dense networks, and were less likely to trust their alters compared to FSWs who perceived less stigma. Together these results show that perceived occupational stigma segregates older FSWs' social networks into isolation rather than solidarity.

Social isolation constrains the amount of information diffused through the workplace network and hampers help seeking behavior.⁹ Socially isolated older FSWs are at a disadvantage because they fail to capitalize on valuable information disseminated through their workplace network, such as access to HIV/STI prevention and treatment services.¹⁰ The consequences of constrictive, socially isolated networks may lead to more individual and structural barriers as a result of insufficient informational support and an elevated burden of mental and psychological stress.

After adjusting for potential confounders, there was no association between condom use and occupational stigma. One possible explanation of our results is that the decision to use condoms is determined by clients.¹¹

Stigma influences multiple socio-ecological levels¹² and therefore, it is imperative for interventions to be aligned within this framework to promote workplace safety and reduce stigmatization. Gatekeepers' ability to provide support to older FSWs could reduce stigma through FSW empowerment, promotion of condom use and workplace safety. Strengthening FSW cohesion may serve as a coping mechanism to deal with the challenges of sex work, as well as provide informational support to increase HIV knowledge, condom use, access to health services, and protect against seclusion from the workplace network.

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