Women's Sexual and Reproductive Health in Post-Socialist Georgia: Does Internal Displacement Matter?

CONTEXT: *Persons displaced by armed conflicts, natural disasters or other events are at increased risk for health problems. The Republic of Georgia has a substantial population of internally displaced women who may face elevated risks of STIs and pelvic inflammatory disease (PID).*

METHODS: *The 1999 Georgia Reproductive Health Survey was used to examine the prevalence of self-reported STI and PID diagnoses among displaced and nondisplaced sexually experienced women. Multivariate analyses were conducted to determine whether displacement is associated with STI and PID risk, and whether the behavioral and socioeconomic factors associated with these diagnoses differ between internally displaced women and the general population.*

RESULTS: *In models that controlled for behavioral factors only, displacement was associated with elevated odds of PID diagnosis (odds ratio, 1.3), but the relationship was only marginally significant when socioeconomic factors were added (1.3). Displacement was not associated with STI diagnosis. The factors associated with STI and PID diagnoses among displaced women generally differed from those in the general population, but access to medical care and previous STI diagnosis were associated with PID diagnosis in both groups. Among nondisplaced women, residing in the capital city was associated with increased odds of STI diagnosis (2.2) but reduced odds of PID diagnosis (0.8).*

CONCLUSIONS: *These findings highlight the importance of displacement status in determining a woman's reproductive health risks, and underscore the complex relationships between behavioral and socioeconomic variables and the elevation of STI and PID risk.*

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Events such as armed conflicts, natural disasters and persecution based on cultural or social identities can force people to migrate, dramatically altering their habitual activities and social relations, interrupting their social support systems and diminishing their access to medical care. Most forced migration takes place in developing countries, leading to declines in already challenging living conditions. Women, children and the elderly are typically overrepresented among forced migrants. Although some migrants cross international borders (and are referred to as "refugees"), others remain in their country of origin; because of sovereignty concerns, these individuals, known as "internally displaced persons," often lack access to the international aid and services provided to refugees.[1]

Internally displaced persons may face unique health challenges, the impact of which is thought to vary depending on the reason for displacement, the stages and duration of displacement, and the site of resettlement. The high proportion of females among displaced persons underscores the importance of examining how behavioral changes and difficulties in access to health care influence the reproductive health of internally displaced women. In this study, we examine the link between internal displacement status and two important sources of preventable reproductive morbidity in women, STIs and pelvic inflammatory disease (PID).[2]

BACKGROUND

Internal Displacement and Women's Health

The displacement process can influence health in several ways. Research linking forced migration and reproductive health outcomes has focused on the impact of psychological stress, economic hardship, social dislocation and challenges to the maintenance of cultural norms.[3,4] For example, migration—and forced migration in particular—provokes stress and anxiety, which in turn can lead to negative health behaviors and alter sexual behavior.[5] Similarly, the changes in socioeconomic status and in access to health services experienced by internally displaced individuals can have a detrimental impact on their health.[6] In addition, because information networks tend to weaken during displacement, displaced persons may lack awareness of available health services.[7]

Social networks are also negatively affected by displacement, in some cases destroying support systems. The disruption of social networks has a direct negative impact on health, as social support exerts important protective effects.[7] Indirectly, disruptions in social networks can interrupt communication channels, limiting the diffusion of information about the availability of health services. In societies with high gender inequality, such as Georgia, women without family support and close social networks are especially likely to have poor access to health services,

as well as to engage in sexual and risky health behaviors.[8] Communal resettlement of the internally displaced can facilitate the re-establishment of social ties, reducing such health risks. However, collective resettlement centers also serve to isolate internally displaced women from the host population, and foster stigmatizing attitudes toward displaced individuals, relegating them to low social status.[3,9]

In addition, the nature of the resettlement process may influence the impact of migration on sexual and reproductive health.[10] The use of collective resettlement patterns (the approach utilized in Georgia), in which internally displaced individuals are resettled in clusters, assists in maintaining healthy behaviors and social and cultural norms, thus potentially minimizing risky behaviors (particularly those related to sexual activity and the use of tobacco, alcohol and drugs).[9,11]

The Case of Georgia

In the Republic of Georgia, intense ethnic conflicts in the regions of Abkhazia and South Ossetia led to the displacement of 300,000 people during the first decade after independence in 1991.[12] The majority resettled in western Georgia and in the capital city of Tbilisi. In 2006, after 15 years of displacement, more than 237,000 people remained officially registered with the government as internally displaced.[13] The impact of this displacement has been far-reaching: Cases of death, gender-based violence and rape among internally displaced women have been documented,[14] and even after resettlement, internally displaced persons have often faced hardships linked to poverty and social isolation.

Obtaining adequate health care has been a particular challenge for internally displaced persons in Georgia. Although displaced persons are covered by state insurance programs and are eligible for free medical assistance in Georgia's main cities, this assistance is limited (because of lack of funding) to consultations with doctors and does not cover advanced laboratory tests or treatment.[9,11] Researchers have concluded that the overall health of internally displaced women in Georgia is worse than that of nondisplaced women.[11] In the 1999 Georgia Reproductive Health Survey (GRHS), sexually experienced women aged 15–44 who were internally displaced had higher rates of clinician-diagnosed anemia, asthma, hypertension, heart failure, and urinary and hepatitis B infections than did nondisplaced women.[15] Moreover, several small studies have found that disease is underdiagnosed among internally displaced women in Georgia.[16] In one collective resettlement study, 65% of families reported health-related problems, yet did not report seeking medical treatment, a rate 15% higher than that in the general population.[17]

The lack of medical equipment, limited access to qualified staff and high expected payments (formal or informal) for medical care contribute to the reluctance of internally displaced persons to seek medical attention. When internally displaced women receive assistance, it tends to be of low quality.[11] Moreover, the internally displaced are at a particular disadvantage in navigating a rapidly changing health care system. Since independence, Georgia's public health infrastructure has become increasingly dilapidated. Service provision and payment structures have changed dramatically, leading to access difficulties across the population but especially among the poor.[18] Diagnostic laboratories continue to be concentrated in Tbilisi, which limits government surveillance of health issues and contributes to the underregistration of disease.[15]

Although internationally supported efforts to address reproductive health needs in Georgia have grown substantially since 1991, little attention has been given to the sexual and reproductive health of the country's internally displaced women. However, the need for reproductive health services remains great. In 1998 (a peak year), there were 37 cases of gonorrhea and 53 cases of syphilis per 100,000 persons. By 2005, the prevalence of these diseases had fallen (to 28 and 12 per 100,000, respectively), but remained comparatively high.[19] (In Western Europe, for example, the corresponding figures are fewer than 20 and five cases per 100,000 persons, respectively.[20]) At the same time, the prevalence of PID has continued to increase in Georgia, from 77 to 115 cases per 100,000 women between 2000 and 2005.*[19]

These high rates of STIs and PID have coincided with low levels of sexual health knowledge, substantial unmet need for modern contraceptives and high reliance on abortion. Although the IUD is the second most common form of fertility regulation after abortion, in 1999, only 20% of sexually experienced women reported having ever used an IUD.[15] Similarly, just 15% of sexually experienced women reported having ever used a condom, and the proportion of current or consistent condom users was very low.[15] Moreover, Georgia's abortion rate is among the highest in Eastern Europe and central Asia.[21]

For these reasons, identifying factors associated with sexual and reproductive health outcomes among both displaced and nondisplaced women is critically important for public health policy and clinical practice in Georgia. Investigation of these issues can inform the development of health care approaches that target populations at particular risk.

STIs and PID

Although STIs and PID differ in terms of causation, treatment and health outcomes, they are also related. Bacterial STIs are a risk factor for PID, and the two disease categories have been linked to similar behavioral and socioeconomic characteristics.[22]

Sexual health practices are the key risk-related behaviors associated with PID and STIs. PID is associated with two bacterial STIs, gonorrhea and chlamydia, which, if untreat-

*In comparison, the prevalence of PID in the UK was 6.7 per 100,000 females in 2005 (see data for salpingitis and oophoritis [ICD code N70] in World Health Organization Regional Office for Europe, Hospital in-patient admission rates, average length of stay and day-cases for all available diagnostic categories, 2007, <http://data.euro.who.int/hmdb/ca.php?cy=UK(2005)&agt=1&ag=0&sex=2>, accessed Dec. 3, 2007).

ed, lead to PID in 14–19% of cases.[22] In some circumstances, regardless of sexual behavior, women are susceptible to PID when normal bacteria in the vagina spread into the uterus, fallopian tubes and abdomen. This may occur after an abortion or childbirth, or may follow the insertion of an IUD, especially when quality postinsertion health care services are not provided.[23–25] Other risk factors for PID include inconsistent use of barrier contraceptives and having more than one lifetime sexual partner.[26] Prior pregnancies and abortions are associated with an elevated risk of both STIs and PID.[2] Finally, use of an IUD and inconsistent condom use have been associated with STIs in some studies, but not in others;[27–29] the inconsistency in findings seems to be the result of variations in samples, estimation techniques and prevalence of infections.

Diagnosis of the two types of conditions can pose challenges. Most STIs are readily diagnosed clinically, but women may misidentify symptoms. The clinical diagnosis of asymptomatic PID is difficult because of the absence of a standard diagnostic procedure. Patients with limited health care access or resources are unlikely to be able to afford advanced diagnostic testing, limiting identification of asymptomatic STIs and PID. Thus, these conditions may go undiagnosed, particularly among displaced women, unless they are severe and symptomatic. Examining self-reports of these diagnoses provides a conservative means of testing the potential importance of displacement.

In this study, we use the 1999 GRHS to test the hypothesis that internally displaced women exhibit higher rates of reported STI and PID diagnoses than nondisplaced women. We expect to find associations, but anticipate that the strength of these associations will diminish when we control for behavioral and socioeconomic factors. We also examine whether the risk factors for STIs and PID among internally displaced women differ from those among nondisplaced women. We expect that behavioral variables will be particularly important in explaining STI and PID outcomes among displaced women, and that socioeconomic variables will be particularly important among nondisplaced women.

METHODS

Data

The 1999 GRHS collected data from a nationally representative cluster sample of 7,798 women aged 15–44. It included an oversample of 1,791 internally displaced women, half of whom were living in collective resettlement centers.[15] Conducted in late 1999 and 2000 through face-to-face interviews, the survey included measures of health and health behaviors, demographic characteristics and socioeconomic status.* Given the importance of sexual behavior in STI and PID risk, we limit our analyses to women who reported being sexually experienced (N=5,703). To compensate for the oversample of internally displaced women and to make the data nationally representative, we employ individual sample weight corrections and adjust for clustering effects.†

Measures

Our dependent variables are whether women have ever received a medical diagnosis of an STI or PID. Women were asked, "Have you ever been told that you have syphilis, gonorrhea, chlamydia, or trichomoniasis?" and "Has a doctor ever told you that you have pelvic inflammatory disease (salpingitis or endometritis)?" Respondents are categorized as ever-diagnosed or never-diagnosed for STIs and PID separately. Self-reported health measures are often subject to reporting and recall biases, but the use of medical diagnoses in this study should minimize misreporting.

The key explanatory variable in this analysis is women's displacement status. Respondents in the GRHS were asked if they possessed the registration card that internally displaced residents need to obtain many government services; those who reported that they had such a card were classified as displaced. Thus, this measure enables us to divide the sample into women with official documentation of internal displacement and those without such documentation. Although some women who were internally displaced during 1991–1999 may not have received a registration card, the proportion appears to be small: Only 3% of the displaced women surveyed did not have such a card.

We also examine specific measures related to behavior and socioeconomic status. Six behavioral variables are used to examine sexual risk and access to medical care. Because relatively few women in Georgia report having had more than one lifetime sexual partner, we use self-reports of having had multiple partners as a proxy for elevated lifetime exposure to STIs. Ever having used an IUD is included as a possible risk factor for PID, as postinsertion monitoring in Georgia is notoriously poor. Condom use may reflect higher reproductive health knowledge, and thus be associated with lower levels of STI or PID risk, or it may be associated with risk behaviors or with having partners who have engaged in risk behaviors. To test the importance of condom use, we compare women who reported having ever used a condom with women who said they had never used one. Having ever had an induced abortion is included in our analyses, because pregnancy termination is often associated with iatrogenic PID.[2] As a measure of access to medical care, we consider whether respondents had had a gynecological exam in the past year. Last, given the established link between STIs and PID, we control for whether respondents had ever had a diagnosis of an STI.

The socioeconomic variables in our analysis include measures of education, place of residence, wealth, culture,

*Although data from the 2005 GRHS are available, the 2005 survey did not include an oversample of the internally displaced. Because the 1999 GRHS did include such an oversample, its data enable a more precise examination of the links between displacement status and women's health, and lend insight into the developmental path of reproductive health in Georgia during the 1990s.

†Adjustment for the oversampling of displaced women (weighted sample size, 268) is dictated by the fact that these women were not selected from the overall household sample, but purposely sampled from 74 urban collective resettlement centers in Georgia.

TABLE 1. Percentage distribution of sexually experienced women aged 15–44, and percentage of those women who have ever had an STI or PID—all by selected characteristics, Georgia Reproductive Health Survey, 1999

Characteristic	All		STI		PID	
	N	%	N	%	N	%
All	**5,703**	**100.0**	**568**	**10.0**	**1,451**	**25.4**
Displacement						
Internally displaced	268	4.7	19	7.2	82	30.5*
Nondisplaced	5,434	95.3	549	10.1	1,369	25.2
BEHAVIORAL						
No. of lifetime partners						
≥2	191	3.4	48	25.4***	63	32.8*
1	5,512	96.6	520	9.4	1,388	25.2
Ever used IUD						
Yes	1,160	20.3	150	12.9***	303	26.1
No	4,543	79.7	419	9.2	1,148	25.3
Ever used condom						
Yes	853	15.0	185	21.7***	247	29.0**
No	4,850	85.0	384	7.9	1,204	24.8
Ever had induced abortion						
Yes	1,609	28.2	133	8.3***	422	26.2
No	4,093	71.8	435	10.6	1,028	25.1
Gynecological exam in past year						
Yes	1,687	29.6	235	14.0***	546	32.4***
No	4,016	70.4	333	8.3	904	22.5
STI ever diagnosed						
Yes	568	10.0	na	na	266	46.9***
No	5,134	90.0	na	na	1,184	23.0
PID ever diagnosed						
Yes	1,451	25.4	266	18.4***	na	na
No	4,252	74.6	302	7.1	na	na
SOCIOECONOMIC						
Education						
≥some college	1,538	27.0	256	16.7***	410	26.7
<college	4,165	73.0	312	7.5	1,040	25.0
Socioeconomic status‡						
Low (0–3)	1,892	33.2	100	5.3***	439	23.2
Medium (4–6)	3,026	53.1	318	10.5	798	26.4
High (7–10)	784	13.7	149	19.1	213	27.2
Region						
Tbilisi	1,425	25.0	282	19.8***	357	25.0
Other	4,278	75.0	286	6.7	1,094	25.6
Women aged 15–44 in household						
≥2	1,480	26.0	130	8.8	396	26.7
1	4,223	74.0	438	10.4	1,055	25.0
Language spoken at home						
Minority	1,072	18.8	50	4.6***	189	17.6*
Georgian	4,630	81.2	518	11.2	1,262	27.3

*p≤.05. **p≤.01. ***p≤.001. ‡Scores represent number of household goods and amenities. *Notes:* Analysis uses weighted data. PID=pelvic inflammatory disease. na=not applicable.

and familial and social networks. Women with higher levels of education, those who are wealthy and those living in Tbilisi may have better access to health information, and therefore have a lower risk of disease, than other women. However, if women who are better educated, wealthy and living in Tbilisi are more likely than their peers to have access to routine health care, then they may have more opportunities for diagnosis of asymptomatic STIs or PID. We categorize women's educational attainment as having attended some college (i.e., university or institute) or less. Wealth, which typically displays a protective effect on health, is assessed via a composite measure of 10 household amenities.* Following the strategy advocated by Bollen and colleagues, we add one to the total number of amenities reported and use the natural log of the resulting score as a continuous measure.[30] Social networks are indirectly measured by the number of women of reproductive age in the household (family networks) and whether the respondent speaks a non-Georgian language at home (social networks). We expect these networks to have a protective effect on health, as they provide access to information as well as social surveillance (monitoring, and social and collective support, from members of the network).

Analysis

We first calculate descriptive statistics for the sample as a whole and for displaced and nondisplaced women. We also calculate the prevalence of STIs and PID by sample characteristics. To identify differences across categories, we use two-tailed chi-square tests.

Correlation matrix and variance inflation analyses of the study variables reveal that collinearity is within acceptable levels. To determine whether internal displacement is associated with the risk of STI or PID diagnosis, we calculate a three-step logistic model across the pooled sample. Similar models are then run separately for internally displaced and nondisplaced women, in order to assess the similarity of risk factors. One measure—having two or more lifetime partners—is excluded from the second set of multivariate analyses because of the small cell size in the internally displaced sample. Results of the multivariate models are presented as odds ratios, with associated standard errors.

RESULTS

Descriptive Analyses

Ten percent of sexually experienced women report having received an STI diagnosis, and 25% report having received a PID diagnosis (Table 1). Internally displaced women are more likely than nondisplaced women to have been diagnosed with PID (31% vs. 25%). Most behavioral measures are positively correlated with STIs or PID. Socioeconomic variables are also important, as rates of STI diagnoses are elevated among women with high levels of education, medium or high socioeconomic status and residence in the Tbilisi region. However, these characteristics are not associated with differences in PID diagnoses. Women who do not speak Georgian at home are less likely to report an STI or PID. Overall, the number of behavioral and socioeconomic variables associated with STI diagnoses is greater than the number associated with PID diagnoses, and the p-values for those associations are generally much

*The 10 amenities are television, automobile, refrigerator, videocassette recorder, cell phone, landline phone, flush toilet, heating system, vacation home and having more than one room per household member.

lower for STI diagnoses than for PID diagnoses.

Displaced women differ from nondisplaced women on several behavioral and socioeconomic variables in our analysis (Table 2). Displaced women are less likely than nondisplaced women to report having had more than one sexual partner in their lifetime; they are more likely than nondisplaced women to have ever used an IUD. In addition, displaced and nondisplaced women differ in two socioeconomic characteristics. Although the two groups have similar levels of educational attainment, more than three-fifths of displaced women have low socioeconomic status, compared with one-third of nondisplaced women. Moreover, displaced women are more likely than nondisplaced women to report that they speak Georgian at home.

TABLE 2. Percentage distribution of sexually experienced women aged 15–44, by selected characteristics, according to displacement status

Characteristic	Internally displaced (N=268)	Nondisplaced (N=5,435)
BEHAVIORAL		
No. of lifetime partners		
≥2	1.2*	3.5
1	98.8	96.5
Ever used IUD		
Yes	27.5***	20.0
No	72.5	80.0
Ever used condom		
Yes	14.7	15.0
No	85.3	85.0
Ever had induced abortion		
Yes	31.5	28.1
No	68.5	71.9
Gynecological exam in past year		
Yes	34.2	29.4
No	65.8	70.6
STI ever diagnosed		
Yes	7.2	10.1
No	92.8	89.9
PID ever diagnosed		
Yes	30.5*	25.2
No	69.5	74.8
SOCIOECONOMIC		
Education		
≥some college	27.9	27.0
<college	72.1	73.0
Socioeconomic status‡		
Low (0–3)	63.7***	31.7
Medium (4–6)	32.3	54.1
High (7–10)	4.0	14.2
Region		
Tbilisi	24.3	25.0
Other	75.7	75.0
Women aged 15–44 in household		
≥2	25.2	26.0
1	74.8	74.0
Language spoken at home		
Minority	6.5***	19.4
Georgian	93.5	80.6
Total	100.0	100.0

*p≤.05.**p≤.01.***p≤.001.‡Scores represent number of household goods and amenities. *Notes:* Analysis uses weighted data. PID=pelvic inflammatory disease.

Multivariate Analyses

In univariate models (not shown), the odds of an STI diagnosis among internally displaced women are not significantly different from those among nondisplaced women (odds ratio, 0.7). However, internally displaced women have significantly higher odds than nondisplaced woman of reporting a previous PID diagnosis (1.3).

In a multivariate model that includes behavioral measures only (Table 3, Model 1, page 26), internal displacement is not associated with STI diagnosis (odds ratio, 0.7), but all of the behavioral measures are associated with STI diagnosis. With the addition of socioeconomic factors (Model 2), the odds ratios for behavioral variables that are positively associated with STI diagnosis in Model 1 decline slightly, but all except one are still significant. Among socioeconomic indicators, higher socioeconomic status and capital city residence are associated with elevated odds of reporting an STI diagnosis (odds ratios, 1.8 and 2.1, respectively), while speaking a minority language at home is associated with reduced odds (0.5).

In the corresponding analysis for PID diagnosis, internal displacement continues to be associated with increased odds of diagnosis when behavioral variables are included (odds ratio, 1.3; Model 1). Having had a gynecological exam within the past year and having a history of an STI diagnosis are also associated with elevated odds of reporting a PID diagnosis (1.8 and 2.8, respectively). After the addition of socioeconomic variables, the relationship between displacement status and a PID diagnosis becomes only marginally significant (1.3). However, the odds of PID diagnosis remain elevated among women who had a gynecological exam in the past year (1.6) or ever received an STI diagnosis (2.9). Residence in the Tbilisi region (0.8) and speaking a minority language (0.6) are associated with reduced odds of PID diagnosis.

Separate analyses for the internally displaced and nondisplaced populations of women are presented in Table 4 (page 26). We use the full model to compare the pattern of determinants between the two groups. For reported STI diagnoses, we find no significant behavioral links for the displaced women. Among nondisplaced women, three behavioral factors (having ever used an IUD, having ever used a condom and having had a gynecological exam in the past year) are associated with increased odds of an STI diagnosis, while having ever had an abortion is associated with reduced odds. Socioeconomic variables are important for both groups, although there are differences in the strength and direction of association. Every increase of one unit in socioeconomic status more than quadruples the odds of a reported STI diagnosis among displaced women (odds ratio, 4.8), and large but only marginally significant increases are found for women who share their home with another woman of reproductive age

TABLE 3. Odds ratios (and standard errors) from logistic regression analyses of associations between selected characteristics and having ever received an STI or PID diagnosis, by model

Characteristic	STI		PID	
	Model 1	Model 2	Model 1	Model 2
Internally displaced	0.69 (0.18)	0.76 (0.21)	1.33 (0.18)*	1.26 (0.18)†
BEHAVIORAL				
≥2 lifetime sexual partners	2.60 (0.50)***	2.43 (0.51)***	1.19 (0.25)	1.32 (0.28)
Ever used IUD	1.37 (0.17)**	1.36 (0.17)*	0.96 (0.08)	0.94 (0.08)
Ever used condom	2.92 (0.30)***	1.91 (0.25)***	0.96 (0.08)	1.07 (0.12)
Ever had induced abortion	0.72 (0.08)**	0.84 (0.09)†	1.35 (0.36)	1.05 (0.09)
Gynecological exam in past year	1.62 (0.17)***	1.47 (0.15)***	1.83 (0.41)***	1.58 (0.14)***
Ever had STI	na	na	2.77 (1.30)***	2.89 (0.35)***
SOCIOECONOMIC				
≥some college	na	1.26 (0.16)†	na	0.93 (0.09)
Log socioeconomic status‡	na	1.82 (0.33)**	na	0.99 (0.11)
Resides in Tbilisi region	na	2.07 (0.36)***	na	0.75 (0.09)*
≥2 women aged 15–44 in household	na	0.83 (0.15)	na	1.15 (0.10)
Minority language spoken at home	na	0.47 (0.09)***	na	0.60 (0.08)***
Pseudo R^2	*.054*	*.098*	*.029*	*.039*
Constant	*–2.619*	*–3.738*	*–1.373*	*–1.246*

*p≤.05. **p≤.01. ***p≤.001. †p<.10. ‡Measured as continuous variable, with higher score indicating higher socioeconomic status. *Notes:* N=5,703. Models are weighted and adjusted for clustering of primary sampling units. All measures are dichotomous unless otherwise indicated. PID=pelvic inflammatory disease. na=not applicable.

and those who speak a minority language (p=.06). Among nondisplaced women, the associations between STI diagnosis and socioeconomic status (1.7) and residence in the capital city (2.2) are significant and strong. Speaking a minority language at home is negatively associated with STI diagnosis (0.5).

Two behavioral variables (having had a gynecological exam in the last 12 months and having had an STI diagnosis) are associated with elevated odds of PID diagnosis among both internally displaced and nondisplaced women. None of the relationships between socioeconomic variables and PID are significant for displaced women, but capital city residence (odds ratio, 0.8) and speaking a minority language at home (0.6) are associated with reduced odds of PID diagnosis among nondisplaced women.

Finally, Tables 3 and 4 show that the independent variables explain a relatively small proportion of the variance in the STI and PID models. However, since the goal of this study is to look at the importance of displacement status and to compare patterns across two populations, the modest R^2 values for both health outcomes are acceptable.

DISCUSSION

In examining data from the 1999 GRHS, we find that displacement is associated with a history of PID diagnosis, but not with STI diagnosis. The association between displacement and the odds of ever having been diagnosed

TABLE 4. Odds ratios (and standard errors) from logistic regression analyses of associations between selected characteristics and having ever received an STI or PID diagnosis, by displacement status

Characteristic	STI		PID	
	Displaced (N=1,230)	Nondisplaced (N=4,473)	Displaced (N=1,230)	Nondisplaced (N=4,473)
BEHAVIORAL				
Ever used IUD	1.65 (0.99)	1.33 (0.17)*	1.19 (0.33)	0.91 (0.08)
Ever used condom	1.57 (0.85)	1.96 (0.27)***	1.29 (0.51)	1.07 (0.12)
Ever had induced abortion	1.99 (0.88)	0.79 (0.87)*	1.35 (0.36)	1.03 (0.09)
Gynecological exam in past year	1.98 (0.88)	1.49 (0.16)***	1.83 (0.41)**	1.57 (0.15)***
Ever had STI	na	na	2.77 (1.30)*	2.95 (0.36)***
SOCIOECONOMIC				
≥some college	1.89 (0.93)	1.24 (0.16)†	0.98 (0.28)	0.92 (0.09)
Log socioeconomic status‡	4.79 (2.75)**	1.73 (0.33)**	0.99 (0.25)	1.01 (0.12)
Resides in Tbilisi region	1.79 (0.76)	2.23 (0.39)***	0.80 (0.22)	0.76 (0.09)*
≥2 women aged 15–44 in household	3.55 (2.53)†	0.80 (0.14)	0.74 (0.25)	1.17 (0.11)†
Minority language spoken at home	3.95 (2.90)†	0.48 (0.09)***	0.96 (0.52)	0.59 (0.08)***
Pseudo R^2	*0.183*	*0.093*	*0.042*	*0.037*
Constant	*–6.636*	*–3.603*	*–1.226*	*–1.240*

*p≤.05. **p≤.01. ***p≤.001. †p<.10. ‡Measured as continuous variable, with higher score indicating higher socioeconomic status. *Notes:* All measures are dichotomous unless otherwise indicated. Models for displaced and nondisplaced samples are weighted separately. PID=pelvic inflammatory disease. na=not applicable.

with PID is weakened when socioeconomic variables are included in the model, consistent with our expectations.

We also hypothesized that the patterns of risk for STI and PID diagnoses would differ between displaced and nondisplaced women, such that diagnoses would be associated with socioeconomic variables among nondisplaced women and with behavioral variables among displaced women. Multivariate analyses confirm that the risk patterns vary among displaced and nondisplaced women, albeit not entirely in the manner we expected. Among displaced women, two behavioral factors—having had a recent gynecological exam and having a history of STIs—appear to be strongly linked to PID diagnosis, but none of the behavioral factors are predictors of STI diagnosis. In contrast, among nondisplaced women, behavioral and socioeconomic factors are associated with both diagnoses. Several behavioral variables, including contraceptive use and abortion history, are associated with STI diagnosis, but not with PID diagnosis, among nondisplaced women. Consistent with other studies,[27,28] a history of IUD use is associated with STI diagnosis but not with PID, possibly indicating that aseptic conditions for insertion are difficult to ensure in Georgia.

In addition, we find that among nondisplaced women, those who reside in the Tbilisi region have elevated odds of STI diagnoses but reduced levels of PID diagnoses. Normally, one would expect a region with a high prevalence of STIs to also have a high prevalence of PID. One possible explanation for this finding may be regional differences in health education and in the stigma associated with reporting STI diagnoses. Another explanation could be regional differences in available resources and management of diseases. It is also possible that factors for which we were unable to control might account for this difference.

Another variation by displacement status concerns our measure of cultural affiliation. Speaking a minority language at home is associated with reduced odds of both STI and PID diagnoses among nondisplaced women. For these women, language networks may be related to systems of social support and monitoring that may encourage healthy behaviors, protecting them from STIs or otherwise reducing the likelihood of diagnosis. Among displaced women, there was a marginally significant ($p=.06$) positive association between speaking a minority language and STI diagnosis, providing tentative support for the hypothesis that language networks represent a resource for financial support (perhaps thus enabling STI testing and increasing the opportunity for diagnosis). More research is needed to explain the relationship between language networks and STI diagnosis by displacement status.

Overall, our findings clearly illustrate the complex linkages between measures of sexual and reproductive health and displacement status. Internally displaced women face unique economic, cultural and social stresses, and we have documented that these women have an elevated risk of having had a PID diagnosis. In addition, our results are consistent with the interpretation that sexual and reproductive health risks may be linked to certain behavioral and socioeconomic factors.[6,15,31] Across models and groups, increased opportunity for diagnosis appears to play a significant role (only about a third of all women in the study, whether displaced or not, had had a gynecological exam in the past year), suggesting that both STIs and PID are underdiagnosed in Georgia, and highlighting the need for additional research linking displacement status, health care utilization and quality of services.

Our results, though interesting, are preliminary. We are limited by the cross-sectional nature of the data, which precludes an assessment of whether diagnoses of STIs and PID occurred before migration or after. We are also hindered by the relatively small number of displaced women in the weighted sample, and by the limited behavioral measures available. Other limitations include our reliance on self-reported data on behaviors and disease diagnoses, and on physician diagnoses of STIs and PID. Because many cases of STIs and PID are asymptomatic, and because symptomatic cases are often not diagnosed by clinicians, the actual prevalence of these conditions may be even higher than that reported here. Moreover, our reliance on physician-diagnosed cases increases in our analyses the impact of women's access to medical care: Women with such access may be more likely than other women to report having a history of STIs or PID, simply because they have had more opportunities to be evaluated for those conditions.

Program Implications

Our results have several implications for policies concerning the reproductive health of displaced and nondisplaced women in Georgia. First, because levels of reported diagnoses are high—one in 10 women has had an STI diagnosed, and one in four has received a diagnosis of PID—more education concerning sexual health, STI prevention, symptom identification, testing and treatment is needed. This is particularly important in settings, such as Georgia, where strong pronatal norms exist, as both disease categories are linked to infertility and other serious health outcomes. Second, the fact that having had a recent gynecological exam is associated with diagnosis suggests that better access to care and improved medical monitoring are needed. Although the data analyzed here do not indicate whether women were diagnosed at their last visit, or if the visit was prompted by a previous diagnosis, the fact that a large majority of women aged 15–44 have not had a gynecological checkup in the past year points to the need for expanded medical access. Finally, the results underscore the need to target services to vulnerable groups. Internally displaced women are significantly more likely than nondisplaced women to have had a PID diagnosis. Because public health funds are limited, targeting education and monitoring to these women and to other groups at special risk can enable more effective use of resources.

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RESUMEN

Contexto: *Las personas desplazadas por conflictos armados, desastres naturales u otros eventos, están expuestas a un mayor riesgo de problemas de salud. La República de Georgia tiene una importante población de mujeres desplazadas internamente, que puede enfrentar mayores riesgos de ITS y enfermedad pélvica inflamatoria (EPI).*

Métodos: *La Encuesta de Salud Reproductiva de Georgia de 1999 se utilizó para examinar la prevalencia de diagnósticos de ITS y de EPI reportados directamente por mujeres sexualmente experimentadas, desplazadas y no desplazadas. Se condujo una serie de análisis multivariados para determinar si el desplazamiento está asociado con el riesgo de ITS y EPI; y si los factores asociados con estos diagnósticos–socioeconómicos y los relacionados con las conductas–, difieren entre las mujeres desplazadas internamente y la población en general.*

Resultados: *En modelos combinados que controlaron solamente los factores de conductas, el desplazamiento interno se asoció con altas probabilidades de un diagnóstico de EPI (razón de momios de 1.3). La asociación fue solamente marginalmente significativa cuando se también se tomaron en cuenta factores socioeconómicos (1.3). El desplazamiento no estuvo asociado con el diagnóstico de ITS. En su mayoría, los factores asociados con los diagnósticos de ITS y EPI entre las mujeres desplazadas difirieron de los de la población en general, aunque el acceso a la atención médica y los diagnósticos previos de ITS estuvieron asociados con los diagnósticos de EPI en ambos grupos de mujeres. Entre las mujeres no desplazadas, el hecho de residir en la ciudad capital, estuvo asociado con mayores probabilidades de diagnóstico de ITS (2.2) pero con menores probabilidades de EPI (0.8).*

Conclusiones: *Estos hallazgos destacan la importancia de la condición de desplazamiento para determinar los riesgos de salud reproductiva de una mujer; y subrayan las complejas relaciones entre las variables de conductas y socioeconómicas y el aumento del riesgo de ITS y EPI.*

RÉSUMÉ

Contexte: *Les personnes déplacées par les conflits armés, les catastrophes naturelles et autres courent un risque accru de problèmes de santé. La République de Géorgie compte une population importante de femmes déplacées à l'intérieur du pays, peut-être susceptibles de courir un risque élevé d'IST et d'infection génitale haute (IGH).*

Méthodes: *L'enquête de santé génésique géorgienne de 1999 a servi à l'examen de la prévalence des diagnostics d'IST et d'IGH autodéclarés parmi les femmes sexuellement actives déplacées et non déplacées. L'analyse multivariée a cherché à déterminer si le déplacement est associé au risque d'IST et d'IGH et si les facteurs comportementaux et socioéconomiques associés à ces diagnostics diffèrent entre les femmes déplacées à l'intérieur du pays et la population générale.*

Résultats: *Dans les modèles groupés sous contrôle des facteurs comportementaux seulement, le déplacement interne s'est révélé associé à une probabilité élevée de diagnostic d'IGH (rapport de probabilités, 1,3). L'association n'est que marginalement significative lorsque les facteurs socioéconomiques sont également pris en compte (1,3). Le déplacement n'apparaît pas associé au diagnostic d'IST. Les facteurs associés aux diagnostics d'IST et d'IGH parmi les femmes déplacées varient généralement de ceux relevés dans la population générale, bien que l'accès aux soins médicaux et le diagnostic antérieur d'IST soient associés au diagnostic d'IGH dans les deux groupes. Parmi les femmes non déplacées, la résidence dans la capitale est associée à une probabilité accrue de diagnostic d'IST (2,2) mais réduite de diagnostic d'IGH (0,8).*

Conclusions: *Ces observations soulignent l'importance de l'état de déplacement dans la détermination des risques de santé génésique des femmes, de même qu'elles font ressortir les relations complexes entre les variables comportementales et socioéconomiques et l'élévation du risque d'IST et d'IGH.*

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