Research Article

Reproductive Health Education and Services Needs of Internally Displaced Persons and Refugees Following Disaster

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Abstract

Background: *Following the occurrence of natural or manmade disaster, relief worker priorities include providing water, food, shelter, and immunizations for displaced persons. Like these essential initiatives, reproductive health education and services must also be incorporated into recovery efforts.* ***Purpose:*** *This study examined reproductive health care indicators, including the key areas of HIV/AIDS and other sexually transmitted infection (STI) transmission, family planning and pregnancy-related health services, and selected reproductive health education knowledge among refugees and internally displaced persons residing in southern Belize following Hurricane Mitch's assault on the region in 1998. In addition, the occurrence of gender-based violence was measured.* ***Methods:*** *Internally displaced persons and refugee men and women were interviewed about prenatal care and delivery services, family planning knowledge and utilization, HIV/AIDS and other STI transmission knowledge, and sexual violence.* ***Results:*** *Numerous misconceptions about HIV/AIDS and other STIs existed. Most persons had never used any family planning method. Oral contraceptive use declined as length of stay at refugee camps increased. Most women were able to access prenatal services. Violence against women, including sexual violence, was reported.* ***Discussion:*** *Better access to medical services and education about reproductive health issues are needed following disasters.* ***Translation to Health Education Practice:*** *Health educators can contribute to relief efforts. Moreover, other relief workers should be equipped with skills and knowledge to help meet the reproductive health needs of disaster victims.*

BACKGROUND

Life for internally displaced persons (IDPs) following a natural disaster, or for persons in a refugee camp after a manmade calamity, can be filled with uncertainty, fear, chaos, and frequent change. From basic living conditions and environments to decision-making authority, virtually nothing remains the same in the overwhelming setting of camp life. Such times are trying for families as they begin to rebuild homes and social structures and regain a semblance of their former life. With the lack of food and potable water being a reality, the greatest fear for some individuals is being unable to feed and care for their children. Because there may not be adequate energy, time, or other resources to care for additional children, family planning is an essential service for the care and sustainability of IDPs and refugees worldwide.

When the immediate threat of a disaster subsides, the first priorities in the emergency phase of recovery tend to include providing safe water, food, and shelter; preventing and controlling communicable diseases and epidemics; and ensuring proper site planning and access to health care. In a typical post-disaster environment, an initial assessment of the population is conducted to determine its urgent needs,[1] with water and sanitation usually emerging as key issues for relief

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workers. Often, the health status of people migrating or transferring to camps or other safe surroundings becomes compromised. Therefore, the main objective of health care in the initial phase of recovery is to reduce mortality and morbidity among the displaced population.[2]

Often absent from this array of necessary services is reproductive health education and care. In the quest to ensure that resources are not diverted from efforts to minimize morbidity and mortality, the importance of issues associated with reproductive health can be overlooked. Nevertheless, components of reproductive health care should be incorporated into recovery efforts during the earliest possible stage.[3] Until recently however, there has been a lack of focus on the reproductive health of displaced populations. Poor reproductive health is a significant cause of death and disease among IDPs and refugees, but lack of services is not an uncommon circumstance.[4] According to the United Nations High Commission on Refugees (UNHCR), food, water, and shelter are priorities, but reproductive health care is a crucial element offering refugees basic human welfare and dignity.[5]

To contend with reproductive health problems, reproductive health and relief organizations have developed a minimum initial service package (MISP). The MISP is a set of activities requiring advocacy and training, as well as a reproductive health coordinator. The United Nations Fund for Population Activities (UNFPA) provides the resources necessary to implement the MISP in the form of reproductive health kits.[6] These resources can be important for displaced populations in the early stages of disaster relief to reduce sexual and other interpersonal violence; to prevent sexually transmitted infections (STIs), including HIV; to meet family planning needs; and to minimize or eliminate possible complications associated with pregnancy.[3,7]

Once the emergency phase is over and the population enters the next phase of disaster recovery, individuals' health status and needs continue to evolve. During this phase, health services have traditionally focused on treatment and prevention of infectious disease, emergency care, and child survival.[8] While these services are certainly critical to the stability and maintenance of health in the population, additional health services are crucial for the health and survival of pregnant women (particularly those whose labor is imminent), as well as for nonpregnant women of childbearing age. Unfortunately, reproductive health services and the overall health of women are often overlooked in the post-emergency phase as well.[9] Despite ever-increasing awareness regarding the importance of reproductive health care for refugee and displaced women, as well as the consequences of lack of services, inattention continues to jeopardize the reproductive health of these individuals.[10] Most refugees and IDPs lack access to reproductive health services, including basic contraceptive planning measures, education, and counseling.[9] Such services are crucial, and their omission may have devastating effects on the population.

During disaster and post-disaster phases, every aspect of a woman's life is impacted, including her sexual activity and decision-making about her sexual health. Sexual activity may actually increase during the post-disaster phase in refugee camps, attributed in part to boredom, anxiety, or promiscuity.[11,12] In addition, some women are coerced into sexual activity out of fear of the physical or social consequences of resistance.[13] Similarly, when resources are limited and protection is essential, women may feel forced into sexual relations out of need for security and basic life-sustaining elements.[11,12]

Sexual violence is endemic in refugee and IDP populations. In some areas, more than 60% of the women have reported sexual violence.[13,14] A study of reproductive health services in refugee camps conducted by the UNHCR found varying rates of women reporting rape, from 0.2 per 1,000 among Rwandans in Ngara, Tanzania, to 3.1 per 1000 among Burundian refugees in Kibondo, Tanzania.[15] In other areas, rates are much higher. Kerimova et al.[14] reported that 21% of the 457 displaced women in Azerbaijan who took part in their study indicated the occurrence of nonconsensual sexual intercourse during the past year. The likelihood of underreporting due to the sensitive nature of these issues must also be considered, along with the probability of an overall underestimation of rape and other sexual violence in displaced communities.

Gardner and Blackburn[12] clarified the importance of including reproductive health care as a component of emergency and post-emergency services. As the number of refugees and IDPs worldwide continues to grow, an effort must be made to understand the ever-changing needs of this population. More than 25% of all refugees and IDPs are women of reproductive age.[16] For these women—most of whom live in conditions of extreme poverty, where resources are minimal, food and shelter are considered luxuries, and physical danger is omnipresent—safe motherhood is nearly impossible. Moreover, women in refugee and IDP environments may find themselves in high-risk situations where they face the threat of violence and potential exposure to HIV/AIDS, and where unsafe abortions may be the only option to terminate a pregnancy.[12]

As a result of sexual violence, other nonconsensual sexual encounters, and alterations in patterns of sexual behavior, HIV/AIDS has the potential to spread widely in such environments, particularly if there are no facilities or preventive measures in place. STIs in general have the potential to grow to epidemic proportions. Historically, the more people move, the faster HIV/AIDS and other STIs spread among them.[12] Sexual or other interpersonal violence may also increase during this time as a result of conflict, displacement, and disruption of conventional values and social structures. During times of displacement, many women are faced with domestic violence, rape and forced prostitution, sometimes in exchange for acquisition of food and shelter.[12] Hence, there is abundant need for measures that can help prevent unwanted pregnancies, STIs, sexual abuse, and domestic violence. This need includes ascertaining both the level of knowledge and safe sex practices

among refugees to minimize rampant disease transmission.

The World Health Organization (WHO) and the UNFPA have identified key thematic areas in reproductive health and disasters, with crosscutting issues that include HIV/AIDS, STIs, pregnancy-related health services, and family planning. Developing appropriate needs assessment strategies and responses to minimize long-term disability and damage also characterized each thematic area.

Southern Belize, the area of focus in this study, is an agricultural region in which bananas are the major crop and economic resource. Natural disasters in neighboring countries during the late 1990s led to an increase in migration to this area by displaced populations. In 1998, Hurricane Mitch, the most notable of these disasters, resulted in a dramatic increase in migration from affected areas. That storm, considered to be one of the most deadly hurricanes in the Western hemisphere in the past two centuries, was responsible for thousands of deaths and the displacement of almost 50,000 people in Central America.[17]

PURPOSE

This study examined reproductive health care indicators, including the key areas of HIV/AIDS, other STI transmission, family planning and pregnancy-related health services, and selected reproductive health education knowledge among refugees and IDPs residing in southern Belize following Hurricane Mitch's assault on the region in 1998. In addition, the occurrence of gender-based violence was measured.

A large portion of those affected by the storm, particularly those living in the hardest hit areas of Honduras, migrated to Belize. Therefore, Hurricane Mitch served as the disaster that initiated this assessment. Historically, however, Latin America and the Caribbean Basin are rarely confronted with large masses of refugees migrating across borders in a short time such as the migration following Hurricane Mitch. Rather, these areas are more typically affected by a slow and continuous flow of people migrating across boarders. In such cases, the post-emergency phase can last from several months to years following a disaster situation. Whereas the initial intent of this study was to focus on reproductive health issues among persons displaced by the devastation of Hurricane Mitch, the importance of understanding the needs of all migrants who entered Belize either before or after the disaster became apparent.

METHODS

Participants

A total of 202 refugees and IDPs participated in this study. Data was collected from either banana farm workstations or health clinics in southern Belize. Of the sample, 121 individuals were selected from banana farm workstations using a simple random sampling procedure. These farms are used as relocation sites or camps for large populations of Guatemalan and Honduran refugees, particularly in the aftermath of a natural disaster. The census at these camps varies, making the estimate of a denominator difficult. An additional 81 displaced persons were recruited from the local health care clinic through convenience sampling, as a comparison group. Obtaining a random sample of clinic participants was not feasible. However, this comparison group offered additional insights about relevant health education and health services needs.

Instrumentation

A 49-item semi-structured interview schedule addressing prenatal care and delivery services, family planning knowledge and utilization, HIV/AIDS and other STI transmission knowledge, and prevalence of sexual violence was used. Items for the interview were adapted from guidelines developed by the UN-WHO Reproductive Health for Refugees Consortium.[7,12] The survey was developed in Spanish and pilot-tested among Spanish-speaking health professionals living and working with refugees in Belize for appropriate language and cultural sensitivity as well as content validity. Instrument refinements were made until comprehensiveness and clarity were deemed satisfactory. Pragmatism, including sensitivity to the living conditions of persons being surveyed, precluded any type of test-retest reliability assessment.

Data Collection

Interviews with the 121 randomly selected camp residents were supplemented by 81 additional interviews performed on a non-probability sample from the local health care clinic to help elucidate findings. The interview team consisted of three Cuban physicians working in Belize, who were trained to interview participants and collect data as part of this initiative. These physicians were chosen to ensure both language appropriateness and cultural sensitivity during administration of the survey. Unlike the refugees' Spanish-speaking countries of origin, the official language of Belize is English. Therefore, Belize hosts an increasing number of Cuban physicians and nurses who work in remote villages and rural areas among displaced populations. Because the native language of these physicians is Spanish and they come from cultural and economic backgrounds similar to those of many of the refugees, they have good rapport with the refugee population and, consequently, were excellent research team members.

Data Analysis

Data was analyzed using the SAS statistical software package version 8.01. A combination of univariate, bivariate, and multivariate analyses were conducted. Frequency distribution tables were generated to provide descriptive statistics on sample demographics and prevalence of selected behaviors. Chi-square tests of independence and independent sample t-tests were performed to assess differences among individuals randomly selected versus those who were part of the convenience sample. Finally, logistic regression models were built to identify significant predictors of family planning knowledge or utilization. Odds ratios are reported to assist interpretation.

RESULTS

These results focus primarily on the random sample. Where a comparison between these primary informants and the non-probability sample of clinic interviewees is

insightful, it is noted.

Demographic Characteristics

The demographic characteristics of respondents are summarized in Table 1. Of the 121 refugees sampled, 55.4% were men and 44.6% were women. More than half (52.1%) were from Honduras. The mean length of time that they had been displaced and living in Belize was 5.1 years (SD=7.6). Participants had a mean age of 28.8 years (SD=10.6) and an average of four years (SD=2.6) of formal education.

Although identification of the specific cause for migration was not the intent of this study, it became apparent from the interviewers' field notes that the majority of refugees did indeed migrate to southern Belize following a recent natural or man-made upheaval, including Hurricane Mitch, another disaster in their country of origin, or political adversities or unrest in other countries of the region.

Table 1. Demographic Characteristics of IDP Camp Respondents

	Percentage of Respondents (n=121)
Gender	
Male	55.4
Female	44.6
Nationality	
Honduran	52.1
Nicaraguan	3.5
Mexican	1.7
Other Central American	43.7
Mean age in years	28.8 (SD=10.6)
Mean years of education	4.0 (SD=2.6)
Mean years of being displaced	5.1 (SD=7.6)

HIV/AIDS

Ninety-three percent of respondents to the question "Have you ever heard of a disease called HIV/AIDS?" answered yes. Whereas most people had heard of the virus, significantly fewer understood the actual mechanisms of transmission. When asked about actual modes of HIV transmission (e.g., blood transfusion, mother-to-infant during childbirth, needle sharing, sexual contact) and mythical modes (e.g., hugging, mosquito and other insect transfer), various beliefs emerged.

All respondents correctly identified sexual contact as a means of HIV/AIDS transmission. When asked if one can get HIV/AIDS through a blood transfusion, 88.9% answered correctly. However, false beliefs and incorrect knowledge regarding HIV/AIDS and STI transmission were prevalent among the respondents. When asked if HIV/AIDS can be transmitted by needle sharing, only 45.5% responded correctly. Just 33.3% correctly indicated that one could *not* get HIV/AIDS from mosquito or other insect bites. Over half of the respondents (58.1%) incorrectly attributed hugging as a risky behavior with respect to acquiring HIV/AIDS, with another 29.0% unsure. Only 12.9% gave a correct response to this item. Finally, fewer than three in ten individuals (29.2%) knew that a woman with HIV/AIDS could transmit the virus to her baby during pregnancy.

Respondents were also asked a series of questions related to actions a person could take to avoid contracting HIV/AIDS. Of 106 respondents offering advice for avoidance, 61.3% reported that one should refrain from sexual relations, 50.9% indicated that one should use a condom, 46.2% said one should refrain from using or sharing needles, 38.7% said one needed to avoid sexual relations outside of marriage, and 18.9% reported that one should seek only healthy partners. Eleven percent responded that there is nothing one can do to avoid getting HIV/AIDS.

Family Planning

To elicit insights regarding family planning needs in this displaced population, respondents were asked to report the family planning methods they had heard of and/or used. They were not prompted by interviewers nor presented with a list of family planning methods; interviewers recorded only those methods mentioned by respondents. The results are shown in Table 2.

The methods of family planning that refugees reported most familiarity with included oral contraceptives (i.e., the pill), injectable hormones, the condom, the IUD, and female sterilization. However, just 22.7% (27 of 119) reported ever using any type of family planning method. Of those who currently employed family planning methods, the three methods most likely to be used included injectable hormones, condoms, and the pill. Among these methods, only condoms offer prevention against transmission of HIV/AIDS and other STIs. Yet, 75.6% of respondents indicated that they lacked comfort in negotiating condom use with a partner.

Results from logistic regression analyses revealed that women were more likely to report ever hearing of female-utilized methods of family planning, including the pill (OR=8.67, CI=2.75, 27.34), IUD (OR=8.75, CI=1.37, 56.09), and injectable hormones (OR=8.79, CI=2.53, 18.16). Men were more likely to report that they had heard of condoms (OR=6.21, CI=2.48, 15.63). Furthermore, higher levels of education were associated with persons who were more likely to have heard of the pill (OR=1.27, CI=1.04, 1.56), IUD (OR=2.85, CI=1.61, 5.07), and injectable hormones (OR=1.34, CI=1.09, 1.64).

To assess the availability of family planning services in the camps, separate questions regarding current family planning utilization were asked. Among individuals who reported currently using some method of

family planning, 94.6% had received family planning services or supplies since arriving at the camp. Respondents who had spent less time at the camps were more likely to report the pill as a method of family planning. In contrast, a decreased likelihood of pill use was associated with having spent a greater amount of time at the camp (OR=0.91, CI=0.83, 0.99), possibly a consequence of the inaccessibility of oral contraceptives for refugees living in remote areas. Lack of transportation is a barrier confronting displaced persons living at the camps, and consequently an important factor affecting access to and use of oral contraceptives. Although the majority of current users of family planning reported receiving supplies since arriving at the camp, most did not receive them from governmental agencies, from which services are free or available at reduced cost.

Table 2. Awareness and Use of Family Planning Methods by IDP Camp Respondents

Method	Ever heard of (n=101) % "yes"	Ever used (n=27) % "yes"
Oral contraceptives	67.3	40.7
Injectable hormones	54.5	48.2
Condoms	47.5	37.0
IUD	16.8	3.7
Female sterilization	10.9	3.7
Male sterilization	5.0	0.0
Abortion	3.0	0.0
Implant	1.0	0.0
Diaphragm	1.0	0.0
Rhythm method	1.0	0.0
Lactation method	1.0	0.0
Withdrawal ("retiro")	1.0	0.0
Other methods	1.0	0.0

Selected Pregnancy-Related Services

The mean number of children among respondents who had offspring (n=86) was 3.3 (SD=2.5). Of these 86 respondents who were parents, 55.8% had children living with them at the camp. Thus, more than half of displaced persons continued to care for children following relocation. The responsibility of caretaking may be particularly burdensome for women who no longer have traditional support systems in place, particularly the support of spouses or other family members. Furthermore, additional pregnancies following relocation may impact the health of the families as the need increases for already limited resources.

Unintended pregnancy is also a problem experienced by the women living in the camps. When asked, "Do you know of any girls or women here who have been pregnant but did not want to be?" 38.7% responded "yes." Among respondents, 84.8% reported that the woman eventually delivered a child, whereas the remaining 15.2% said that the woman had an abortion.

Most refugee women who required prenatal care services received them. In fact, women who had relocated when they last gave birth were more likely to have had health services at the time of delivery than were women who gave birth in their country of origin or while in transition to the camp. For example, 21.6% of women were pregnant at the time of interview. Of those, the majority (72.7%) had seen a health care provider. Of the women who responded to the question "Did you see anyone during your last pregnancy?" (n=25), all answered "yes." Women who received prenatal care averaged approximately five visits (mean=5.1, SD=1.4) to a health care provider. Of the women who responded to the question "Where did you go during your last pregnancy?" (n=35), 88.6% went to a government-sponsored facility. The remainder sought care elsewhere. When asked about the care they received, most women reported receiving recommended prenatal vitamin supplements and immunizations. Among those who received care, most (86.5%) were given tetanus toxoid injections during their last pregnancy, and many (60.5%) also reported being given dietary supplements such as iron or folic acid.

Interpersonal Violence

Women may be more vulnerable to sexual and gender-based violence in disaster environments due to displacement, loss of community structure, and the temptation to exchange sex for goods and protection.[11-15] Violence can have severe physical and psychological effects on unintended pregnancies, and can be a factor in unsafe and complicated abortions, transmission of HIV and other STIs, as well as anxiety, stress, depression, and suicide.

To estimate the level of sexual and gender-based violence occurring in the camps, respondents were asked whether or not females had been forced to have sex against their will. Of the 121 respondents, 37.2% said "yes." Among individuals who reported sexual violence, their relation to the perpetrator varied. Table 3 identifies these relationships. Furthermore, nonconsensual sexual encounters increase the likelihood of unintended pregnancy, abortion, and transmission of STIs.

In addition, respondents were asked whether or not women trade sex to get food, protection, or other survival necessities. When women were asked if they worry about being forced to have sex against their will, 38.9% said they worry "a little," while 29.6% said they worry "a lot." One-fourth of the women (25.9%) reported that they had already traded sex for supplies, and only 5.6% said they did not worry about nonconsensual sex.

There may also be greater risk of

Table 3. Perpetrators of Violence Against Women at IDP Camps

	% yes*
Which men are most likely to force women to have sex? (n=45)	
Husband/friend	33.3
Someone in the family	13.3
Other displaced person	6.7
No one in particular	64.4
Who has hit you since you arrived at the farm/camp? (n=10)	
Husband	60.0
Father	20.0
Other	30.0

* Cumulative percentages are greater than 100% due to multiple responses.

domestic violence during disaster situations. Disruption of support networks and changing gender roles for both men and women may put the latter at increased risk. Respondents were asked if their husband/partner or other household member had hit them since they arrived at the camp; only 13.3% answered "yes." Those who had been struck since arriving at the camp indicated various individuals as the perpetrators of the violence (see Table 3). Other forms of abuse or physical violence may exist in these settings, but they were not incorporated into the survey instrument.

Banana Farm Refugee Camps versus Clinic Sites

As noted previously, an additional 81 individuals were selected through convenience sampling and interviewed at various government-sponsored health clinics. When the random sample was compared to this convenience sample, there were no differences between with respect to demographic characteristics. However, there were differences related to knowledge and utilization of family planning, knowledge of HIV/AIDS, and awareness of gender-based violence occurring in camps.

For example, the clinic sample reported greater knowledge of family planning methods including the pill (χ^2=17.8, df=1, p<.0001), injectable hormones (χ^2=10.5, df=1, p<.01), condoms (χ^2=14.0, df=1, p<.01), female sterilization (χ^2=125.6, df=1, p<.0001), and withdrawal (i.e., "retiro") (χ^2=5.4, df=1, p<.05). In addition, individuals sampled from the clinics were more likely to have ever used family planning (χ^2=44.0, df=1, p<.0001), and more likely to make current use of it (χ^2=8.2, df=1, p<.01).

Respondents from the clinics also appeared to have increased awareness of gender-based violence occurring at the camps, including trading sex for food, shelter, or other necessities. For example, a larger proportion of clinic attendees reported that "women or girls traded sex for necessities in the farm" compared to individuals from the camps (χ^2=41.7, df=2, p<.0001).

Lastly, refugees from the clinics had greater knowledge about HIV/AIDS transmission than those from the camps. Specifically, more individuals from the camps reported that one can get HIV/AIDS from hugging compared to individuals from the clinics (χ^2=38.4, df=2, p<.0001). Moreover, a larger proportion of clinic patients reported that one can get HIV/AIDS from sharing needles (χ^2=12.7, df=2, p<.01), and that a woman with HIV/AIDS can give AIDS to her baby when she is pregnant (χ^2=30.8, df=2, p<.0001).

DISCUSSION

Of the reports by the U.S. Centers for Disease Control and Prevention (CDC) published in the *Morbidity and Mortality Weekly Report* following such U.S. hurricanes as Andrew in 1992,[18] Marilyn and Opal in 1995,[19] Isabel in 2003,[20] and Charley in 2004,[20] not one mentions reproductive health education or service needs of displaced persons. In 2005, Hurricane Katrina disrupted basic health care services in large portions of Louisiana and Mississippi.[21] Conditions were subsequently exacerbated by Hurricane Rita.[21] In the days after Katrina, over 200,000 persons became displaced in evacuation centers in some 18 states.[22] Despite this staggering figure, no specific reference to reproductive health care in discussion of needs assessment is advanced in either CDC publication about the hurricane.[21,22] Mention of this omission is not intended as a criticism of the CDC or local public health and other rescue and evacuation officials; rather, it is intended to illustrate how readily some critical health issues can be unintentionally marginalized.

The present study offers important insight regarding a number of needs exhibited by displaced persons fleeing disaster areas, including access to medical services and responsive health education about HIV/AIDS and other STI prevention, family planning, other reproductive health issues, and violence prevention. Moreover, following long periods of being uprooted from their country of origin, refugees find that their needs evolve. Traditional emergency services remain essential, but services that ensure sustainability are imperative. Furthermore, these results emphasize the need for services that address persistent myths and educational deficiencies related to reproductive health issues.

Awareness of HIV/AIDS was relatively high in this sample, but confusion abounded with respect to actual and perceived modes of HIV transmission. Modes of transmission such as sexual contact and blood transfer with infected persons were readily recognized, but certain non-modes (e.g., mosquito-borne infection; hugging and casual person-to-person contact) were incorrectly identified as risks by a majority of respondents, while other significant modes (e.g., needle sharing; mother-to-fetus transfer) were identified by less than half

of the primary sample. Similarly, some risk reduction behaviors (e.g., avoiding sexual relations, especially outside of marriage) were noted, but only half of the sample (50.9%) recognized condom use as one such behavior. Educational interventions are imperative to dispel the beliefs among refugees that "there is nothing one can do to avoid getting AIDS" and that "one can successfully avoid AIDS infection by looking for healthy partners." As efforts are made to prevent the spread of HIV/AIDS and other STIs among displaced populations and the areas to which they migrate, educating refugees on methods of disease transmission and prevention is crucial. Given the increased risk of STIs in times following disaster and the modest reported level of condom use, the importance of condom distribution and utilization must be highlighted. Moreover, low self-efficacy with respect to negotiating "safer sex" (see below) impacts rates of condom use, thus playing an important role in the spread of HIV/AIDS and other STIs, as well as in higher rates of unintended pregnancy.

Family planning initiatives should be a component of disaster mitigation planning. In the current study, refugees showed familiarity with a limited range of family planning methods and employed an even narrower range of contraceptive options. Whereas the oral contraceptive is effective and popular among persons who use any method at all, its use declined as persons' displaced time increased. As suggested previously, the decline in pill use may be attributable to insufficient financial resources in this displaced population, affecting access to services, low awareness and availability of free or reduced cost government-sponsored services, inadequate access to transportation, or a combination of these elements—all problems noted by respondents. The presence of these barriers underscores the need for dissemination of condoms and education about their proper use, especially for persons who have depended on other methods of family planning. During times of crisis, family planning resources must be made available to families. As McGinn[4(p175)] noted: "Not surprisingly, demand for family planning services is affected by migrants' previous family planning knowledge and experience. However, even among migrant groups with limited prior exposure and low demand, the availability of high-quality education and services can be expected to help them attain their desired family size and improve their health status."

Whereas condom distribution and improved availability may impact both unintended pregnancy and HIV and other STI transmission risk, such defensive measures may be inadequate unless accompanied by concurrent education and development of adequate negotiation skills. This study revealed a reluctance of respondents to ask a partner to use a condom. More than three out of four respondents (75.6%) expressed concern about their negotiation ability. Whereas cultural and religious factors and gender roles likely contribute to this reluctance, interventions to promote self-efficacy and better communication skills could increase comfort in negotiating condom use.

Based on this study, pregnancy health services in Belize are better and more readily accessible than the health services in many of the refugees' countries of origin. Most of the women had adequate prenatal and postnatal care in their host country. Those who gave birth in Belize during their last pregnancy were more likely to deliver with health services than women who gave birth in their country of origin. Still, additional services may be required to meet population needs. Efforts to ensure that services are available to all pregnant and imminent-labor women, as well as other women of reproductive age, should be a designated priority in disaster circumstances.

The study also highlights the importance of implementing preventive measures to protect women from sexual violence. Efforts must be made to improve education on sexual and gender-based violence. A considerable portion of refugees reported an awareness of women trading sex for basic necessities, as well as sexual and domestic violence against women. Similarly, a majority of the female respondents worried about forced sexual encounters. Sexual coercion and violence not only violate one's rights and compromise personal security, they also increase the likelihood of unintended pregnancy, abortion, and transmission of HIV and other STIs. This study suggests that current protective measures to ensure personal safety may not be adequate.

Compared to interviewees from the camps, individuals sampled from the health clinics had greater knowledge of family planning methods, higher past and present family planning utilization rates, greater knowledge of HIV/AIDS, and better awareness of sex trading for survival necessities. These findings underscore the positive outcomes health services have on the lives of displaced persons and serve as validation for the need to increase the availability of preventive and other services in locations where the displacement occurs.

Limitations

This study has notable limitations. First, items for the survey instrument were inspired by WHO guidelines whose themes only narrowly reflected issues related to reproductive health and, to an even lesser extent, gender-based violence. This limited range of items may have caused interviewees to respond in particular ways, thus generating unforeseen bias. Moreover, other elements that were not included may be relevant to the health and well-being of refugees and IDPs. Although the instrument underwent pilot testing, its actual validity and appropriateness for persons from multiple countries cannot be known with certainty. Furthermore, as indicated above, pragmatism related to the conditions of the participants and locale precluded typical instrument reliability testing procedures. No *a priori* power analysis was carried out to estimate a target sample size. Due to the circumstances surrounding data collection, including the environment and considerations of working with an extremely vulnerable population living in abject poverty, the researchers were fortunate to sample as many individuals as they did.

In addition, physicians conducted all interviews. Although they were thoroughly prepared for this data collection role, the manner in which they asked questions and

recorded responses may have impacted results and their interpretation. Furthermore, despite their similarities in language, culture, and economic background, the physicians and displaced persons had some degree of difference in social status that may have affected interactive styles and responses. Thus, interviewer and method effects on the results cannot be ruled out.

Finally, the nature of the sample itself may have created certain limitations. As noted previously, the overall number of interviewees was relatively small. There were also differences between the participants randomly selected from the camps and those obtained through convenience sampling at clinic sites. Overall, these individuals may be different from other persons who have migrated to Belize and may not be representative of all people who have been adversely affected by natural disaster or politically inspired circumstances in other parts of the world. In addition, the interaction of circumstances leading to the displacement, as well as the specific geographic settings involved, may have created unique challenges not generalizable to other settings, persons, or periods of time.

These notable limitations notwithstanding, the absence of optimal research conditions should not discourage health educators and other public health and disaster relief personnel from accumulating as much knowledge as possible that may assist future response efforts.

TRANSLATION TO HEALTH EDUCATION PRACTICE

According to *Reproductive Health Outlook*,[6] comprehensive reproductive health services for displaced populations should address five areas: (1) *safe motherhood*, including emergency obstetric care, both to avert maternal mortality and to create effective referral systems; (2) *HIV/AIDS and other STIs*, including but not necessarily limited to ensuring a safe blood supply, educating people about STIs, distributing condoms, promoting dual protection, and preventing sexual violence; (3) *family planning services*, including having skilled providers and reliable contraceptives available; (4) *violence against women*, including education about gender-based violence, counseling, medical care, and strong security in camps and other evacuation sites; and (5) *adolescents*, including steps to minimize breakdowns in social norms and loss of parental supervision that can lead to experimentation with high-risk practices such as unprotected sex and sexual coercion.

Future developments in disaster planning should include training individuals who are receptive to the knowledge, attitudes, and skills that enable them to serve as reproductive health services coordinators. Given the important role women have as resilient family caretakers, preparing local women to assist persons in need may be an excellent means of mitigating the short- and long-term negative impacts of disasters. Future efforts to promote the health of displaced persons—particularly related to HIV/AIDS, family planning, pregnancy-related health services (including education), and interpersonal and sexual violence—should emphasize the important role and ability of trained women in safeguarding and promoting the health of others. Moreover, improved understanding of the ways in which the reproductive health issues of displaced women in disaster situations are similar to and different from women in settled populations can help focus programs and policies alike.[4]

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