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## Forced Migration and HIV/AIDS Risks in Angola\*

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## **Forced Migration and HIV/AIDS Risks in Angola**

### **ABSTRACT**

This study examines HIV/AIDS-related knowledge, attitudes, and behaviour of forced migrants in Luanda, Angola, by comparing them with those of voluntary migrants and long-time city residents. The study uses data from a survey of 1081 men and women conducted in 2004 in two suburban municipalities of Luanda: one with a large share and one with a small share of the forced migrant population. The analysis detects differences between forced migrants and the other two groups in HIV/AIDS-related knowledge and attitudes, but these differences are explained away by the demographic characteristics and socioeconomic disadvantages of forced migrants. With respect to behaviour, we find that regardless of other characteristics forced migrant men are more likely to engage in practices that may lead to increased HIV risks than long-time male city dwellers. The differences between forced and voluntary male migrants show the same tendency but are not statistically significant. While women overall are less likely to engage in potentially risky practices than men, differences among women in the three migration-status groups are not as pronounced as among men.

## INTRODUCTION

This paper examines HIV/AIDS-related knowledge, attitudes, and behaviour in Luanda, the capital of Angola, an African country of some fourteen million with a long history of civil war, where most recent estimates put adult HIV prevalence at four percent (UNAIDS, 2006). It compares HIV/AIDS outcomes among forced migrants, voluntary migrants, and long-time city residents, while paying special heed to the role of gender and community environment.

War-induced migration is often singled out as a major factor in increased health risks and mortality (Reed & Keely, 2001; Toole & Waldman, 1993), and by extension it is widely assumed that refugees and internally displaced persons fleeing military conflicts experience increased exposure to risks of HIV infection (Hankins et al., 2002; UNAIDS, 2001; UN General Assembly, 2001). Yet rigorous studies of the connections between military conflict and HIV/AIDS are still relatively few, not least because security concerns and lack of research infrastructure in conflict areas often prevent or bias data collection (Salama & Dondero, 2001; Spiegel et al., 2001). These studies have produced inconsistent evidence. While some authors claim that war-induced migration accelerates the spread of HIV/AIDS (Elbe, 2002; McCarthy et al., 1995; Mworzi, 1993; Santos-Ferreira et al., 1990), others find no effect (Cossa et al., 1994; Nur et al., 2000). Interestingly, some studies argue that the restriction of labour mobility caused by war may retard the spread of HIV/AIDS (Spiegel & Nankoe, 2004). The isolation of Mozambique (Agha et al., 2001; Barreto et al., 1993) and Nicaragua (Low et al., 1993) from their neighbours during their respective civil wars is seen as one of the reasons for these countries' relatively low seroprevalence at the time when hostilities ended. Similar observations were made for Sierra Leone (Kaiser et al., 2002) and Angola (Spiegel & De Jong, 2003).

War and war-induced migration may affect the exposure to HIV/AIDS through various intermediate factors, both social and institutional. Some of these factors identified in the literature—widespread impoverishment and malnutrition, the collapse of the economy and

infrastructure, and the paralysis of the health sector—are not unique to HIV/AIDS risks. However, the crisis of the health sector has an added relevance in that it hinders prevention campaigns and condom availability (Goyer, 2001; Larsen et al., 2004; Mworozi 1993). Studies focusing on HIV/AIDS emphasize the importance of social dislocations produced by war: the breakdown of established patterns of sexual and marital behaviour and of family systems—earlier entry into sexual life, frequent marital separations, mass rape by and forced marriages to combatants, rupture of kin support networks, etc. during war are thought to be widespread (Anonymous, 1996; Fonseca et al., 2001; Goyer, 2001; Mworozi, 1993). Risky behaviour can also result from anxiety and psychological instability due to fear and trauma or, on the contrary, fatalism and apathy with respect to health risks as part of the habituation to the harsh environment of war (Eyber & Ager, 2002; Goyer, 2001).

The literature stresses gender differences in war-related HIV/AIDS risks. Women in war settings become disproportionately vulnerable because of widespread sexual violence against them (Amowitz et al., 2002; Leitão, 1996; UNAIDS, 2001). The economic hardships resulting from war may leave women few alternatives but to engage in risky transactional sex in order to provide for themselves and their children and/or to gain social protection (Anonymous, 2001; Mworozi, 1993). Yet some studies have questioned the assumption that war-displaced women's insecurities necessarily translate into higher HIV/AIDS risks (Spiegel & Nankoe, 2004). As for men, their risks are often associated with their predominance among combatants, who have been found to have higher infection rates than the general population (Goyer, 2001; UNAIDS, 1998; Wollants et al., 1995).

However scant and limited in scope, most literature on forced migration and HIV/AIDS focuses on the period of war or its immediate aftermath. Some studies, however, point to the importance of post-war periods. Thus in Mozambique HIV infection levels, somewhat suppressed during the civil war of 1978-92, began to rise rapidly after its end, as economic and demographic exchanges with neighbouring countries and within Mozambique intensified (Agha

et al. 2001). The argument about a post-war explosion of HIV/AIDS in Mozambique was indirectly supported by a study by Barreto et al. (2002) that found a statistically significant association between district-level seroprevalence rates and the proportion of district population that was living outside Mozambique by the time the civil ended in 1992. Demobilization of combatants is cited as another reason for post-war spread of HIV/AIDS (Tripodi & Patel, 2004).

Whereas the field of research on forced migration and HIV/AIDS is dotted with major theoretical and empirical lacunae, this research can be usefully informed by studies linking voluntary migration and HIV/AIDS.<sup>1</sup> Recent years have produced a large body of literature in that area, yet despite a large number and diversity of studies that seek to link voluntary migration and HIV/AIDS directly or indirectly, most of them come to similar conclusions. To summarize this literature, migration is seen as an important factor in the transmission of HIV/AIDS because it removes migrants from their families and traditional zones of social control thereby facilitating commercial and casual sexual relationships; migrants tend to gravitate to urban areas, where infection levels are typically higher than in the countryside; and migration allows the infection to travel long distances, usually from destination communities to origin communities and along transportation routes (e.g., Anarfi, 1993; Appleyard & Wilson, 1998; Brockerhoff & Biddlecom, 1999; Brummer, 2002; Chirwa, 1997; Decosas et al., 1995; Herdt, 1997; Hunt, 1989; Lalou & Piché, 1994; Nunn et al., 1995; Pison et al., 1993; Tanser et al., 2000; UNAIDS 2001).

Whether assessing the implications of migration for HIV/AIDS risks directly or indirectly, most studies therefore assume that migration both encourages and facilitates risky behaviours. Male migrants are believed to be at the highest risk because of a high likelihood of using commercial sex. On their part, migrant women may tend to engage in transactional sex, i.e.,

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<sup>1</sup> By voluntary migration we refer to migration that is not triggered by immediate and concrete threats to individuals' lives, health, and well-being. Voluntary migration is typically driven by economic or family motives and generally involves a greater degree of choice, planning, and preparation on the part of migrants and their families than does forced (e.g., war-triggered) migration. We, of course, realize that the distinction between voluntary and forced migration is rarely clear-cut and interpret our results accordingly.

sexual partnerships that yield material and social benefits necessary for these women's and their families' survival (Anarfi, 1992; Decosas et al., 1995; Rodenberg, 1993). This growing literature notwithstanding, the dynamics of the migration-HIV/AIDS nexus are still not well understood (Lurie 2006; Prothero, 1996), and some recent studies have questioned simplistic assumptions. Thus a study in Cameroon found that while among men, migrants had a much higher HIV infection level, the pattern was muted among women (Lydié et al., 2004). A study in Zimbabwe found no effect of rural-urban migration on HIV infection risks (Coffee et al., 2005). A study in South Africa concluded that male migrants in urban areas were no more prone to risky behaviour than rural men (Wolff et al., 2002). Another study in South Africa found that male migrants were significantly more likely to be HIV-positive than non-migrants but detected no significant differences between their partners (Lurie et al., 2003a). Finally, Lurie et al. (2003b) suggested that HIV infection may be transmitted not only from male migrants to their rural partners but also the other way around.

Because of the dramatic nature and circumstances of war-induced migration and the disproportionate focus on the population of the refugee camps and other similar special settings in related research and interventions, war-induced migration is treated separately from more conventional, war-unrelated migration processes. Parallels between war-induced and war-unrelated migratory moves and their implications for migrants' health and specifically HIV/AIDS-related outcomes are seldom discussed. It therefore remains to be examined whether HIV/AIDS risks associated with forced migration are any higher than those commonly attributed to migration processes that are not directly related to war. Our study aims at filling this gap.

## CONCEPTUAL FRAMEWORK AND RESEARCH HYPOTHESES

Our conceptual model rests on three main assumptions. First, we assume that war-induced migration leaves profound and long-lasting social and psychological scars among forced migrants (to whom we will also refer as war migrants) that may impede their full integration—

economic, social, cultural, and political—into city life. This mal-integration and marginalization of war migrants may increase their vulnerabilities to HIV/AIDS. Second, we assume that because women's and men's experience in war-induced migration and its aftermath differ considerably, so should HIV/AIDS outcomes. Third, we assume that the deleterious effects of war-induced migration are manifested not only at the individual level but also at the level of the community. Thus a large presence of war migrants in a community creates a certain socio-cultural milieu that may affect community members' HIV/AIDS outcomes regardless of their individual migration background.

Our hypotheses focus on the effects of migration status and the interaction of these effects with those of gender and social environment. To ascertain the effects of war-induced migration we compare those respondents who came to the city because of war with those who migrated for reasons directly unrelated to war and with long-time city residents. Guided by our conceptual premises, we expect that war migrants will have the least knowledge about HIV/AIDS risks and prevention, followed by non-war migrants and long-time city residents. War migrants' marginalization and vulnerability may also result in higher levels of worries about HIV/AIDS infection. In the same vein, war migrants should be more prone to risky behaviour than the other two groups. However, because any migration may result in greater HIV/AIDS vulnerability, we also anticipate that the gap between the two categories of migrants will be smaller than between war migrants and long-time urbanites.

The anticipated associations are likely to vary between women and men. Thus we expect the hypothesized disadvantages in knowledge and perceptions about HIV/AIDS will be amplified for women. On the contrary, behavioural risks of war migrants should be concentrated among men. The expected associations will diminish after controlling for demographic and socioeconomic factors that we are able to measure, but because of unmeasured but implied profound social dislocations associated with forced migration the disadvantage of war migrants is expected to persist after the addition of standard controls.

With respect to community social environment we expect that residence in areas with high concentration of war migrants will magnify their disadvantages, compared to areas where the share of war migrants is relatively small. Finally, for both men and women, we want to investigate whether the disadvantages associated with war-induced migration, if they are indeed detected, decrease as the duration of their life in the city increases. On the one hand, migrants' gradual integration into urban society should diminish their differences from long-time residents. However, the burden of forced migration experience can endure for a prolonged time thereby both undermining the war migrants' integration into city life and perpetuating their HIV/AIDS vulnerabilities.

#### THE SETTING

Angola suffered through one of the longest and bloodiest internal conflicts in modern African history. The war between the Popular Movement for the Liberation of Angola (MPLA) party, which came to power after the collapse of the Portuguese colonial empire, and its opponents, mainly the National Union for the Total Independence of Angola (UNITA) party, started even before Angola's independence in 1975 and lasted intermittently until the peace accords of 1991. Hostilities flared up again in the fall of 1992, after the UNITA opposition refused to accept the results of the presidential elections, and continued until another peace agreement was signed in 1994. The following period of peacefulness lasted for several years, until the growing distrust between the two main parties, MPLA and UNITA, erupted into a new round of war in 1998. That last round continued until the death of UNITA's leader and its military defeat in 2002. By the time of our fieldwork Angola had lived in peace for just over two years.

During most of the war years Luanda remained one of the few islands of safety in Angola, attracting displaced people from both close and distant parts of the country ravaged by hostilities. However, even during the war many migrants came to Luanda for reasons *directly* not related to war—to join relatives and to look for better educational and employment

opportunities. As a result of the combination of war-related and war-unrelated migration, the population of Greater Luanda grew very rapidly, reaching up to four millions toward the end of the civil war (Jenkins et al., 2002). The massive influx of migrants has exacerbated the problems typical of many cities in less developed countries: overcrowding and housing shortage, unemployment, crime, the decay of infrastructure, traffic congestion, and environmental pollution. Also, since the socialist policies of the first decade and a half of the independent period were gradually abandoned in the early 1990s, the socioeconomic inequality, fuelled by the highly inequitable distribution of oil revenues and by war profiteering, grew rampant.

No official data on the size and distribution of war-related migrant population in Luanda are available. While some of them continued to live in camp-like conditions on the distant periphery of the capital, others managed to make their ways into more established and centrally located neighbourhoods, either by staying with relatives or building, often illegally, precarious dwellings in the few remaining unoccupied spots in the city slums.

## DATA AND METHODS

The data used to test our hypotheses were collected in 2004 in two peri-urban municipalities (*municípios*) of Greater Luanda—Samba and Viana. Samba, a long-established peri-urban community, close to the city core, was chosen as a community with a relatively small war migrant population, whereas Viana, a more distant and less urbanized suburb, was chosen because of a larger estimated share of war migrants. In both municipalities we conducted a representative survey with a total sample size of 1081. The survey sample included a roughly equal number of men (aged 15-59) and women (age 15-49). In each municipality, the sample was drawn separately in each *bairro*, an administrative subdivision of *município* (8 *bairros* in Viana and 9 *bairros* in Samba) with a *bairro* sample size proportionate to each *bairro*'s estimated population size. Households within each *bairro* were chosen using a random walk

algorithm. In each chosen household, one resident of eligible age, alternately a man or a woman, was randomly selected for an interview. No stratification by migration status was done at the sampling stage.<sup>2</sup> Overall, 61 of the selected households had to be substituted, of which 44 because of unavailability of selected individuals and only 17 because of refusal to participate in the study. Because of the relatively low non-response no adjustment is made in the analyses. The survey was administered in person in Portuguese by an interviewer of corresponding gender. The survey instrument contained, among other items, questions on respondents' migration history, household and sociodemographic characteristics, marriage and sex life, health and reproduction, and HIV/AIDS knowledge, attitudes, and behaviour.

To test our hypotheses we examine three groups of HIV/AIDS-related outcomes. The outcomes in the first group describe respondents' knowledge about HIV/AIDS and access to prevention. Here we look at basic understanding of HIV/AIDS symptoms, personal encounters with HIV/AIDS, exposure to HIV/AIDS-related information through formal and informal channels, access to condoms and to HIV testing services. The second group includes measures of HIV/AIDS-related perceptions and attitudes. Here we consider four outcomes: whether the respondent thinks she/he is at high risk of HIV infection; whether she/he is very worried about getting infected; whether she/he finds it acceptable for a woman to insist on condom use with her husband if the woman knows or thinks that the husband has HIV; whether she/he finds it acceptable that a husband leaves his wife if he thinks she is infected; and whether she/he finds it acceptable that a wife leaves her husband if she thinks he is infected.

The third group of outcomes encompasses what we see as behaviour that might bear on individuals' exposure to HIV/AIDS risks. The first outcome in this group is the number of

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<sup>2</sup> Because the primary interest of the project was in war-migrant population, the choice of the sample size was driven largely by our assumptions about the share of war migrants in the combined adult population of the two selected municipalities. Based on earlier observations and anecdotal evidence we estimated that, on average for both municipalities, war migrants will constitute about a third of the population. A sample of 1080 would replicate this distribution with 95% confidence and less than +/-3% sampling error (e.g,  $1.96^{2*}.33*.66/.028^2=1080$ ), offering more than sufficient power for sound analysis. It was also expected that within the population who were not war migrants, about half would be city natives.

heterosexual partners in twelve months preceding the survey. The second outcome is whether the respondent was in a current sexual relationship with a live-out partner (either regular or non-regular), which we consider a potentially risky relationship because it generally implies less stability and weaker mutual commitment than a live-in relationship. The last outcome is a subset of the previous one: a potentially risky current relationship without regular condom use. We consider this outcome the most direct indicator of risky behaviour.

Our main predictor is migration status. We break down the sample into the following three categories: 1). Long-time city residents, including city natives, those who came to Luanda before the resumption of hostilities in 1992, and those who moved to the city before age six (regardless of causes of their move), (62.7% of the sample); 2) Migrants who came to Luanda since 1992 for reasons not related directly to war, or non-war migrants (16.7%); and 3) Migrants who moved to Luanda since 1992 for reasons related directly to war, or war-migrants (20.6). Although this reclassification of migration status leads to a greater imbalance among the three groups, it allows for more sound comparisons since the effects of migration are most likely to manifest themselves among migrants who came relatively recently.

#### Statistical model

We start our analysis with an examination of sociodemographic characteristics of the three migration-status groups and a bivariate exploration of possible connections between migration status and HIV/AIDS outcomes. We then fit multivariate models to assess the net effects of migration status on the outcomes of interest. All but one outcome that we examine are operationalized as dichotomies. Accordingly, for each of these dichotomous outcomes we fit logistic regression. Because the number of sexual partners approximates the Poisson distribution, we employ Poisson regression to model the effects of migration status on this outcome. We are particularly interested in how war migrants are different from the other two groups and therefore use war migrants as a reference category. To test our hypotheses

regarding the role of gender and the community environment, in addition to main effects, we examine interactions between migration status and each of these two indicators. Finally, to examine possible effects of the duration of migrants' life in the city, we also fit a similar set of models for two migrant groups only in which we control for years since arrival.

All multivariate models control for sociodemographic characteristics: age, age squared, gender, marital partnership, education, municipality of residence, current employment status, dwelling ownership, TV ownership, meat/poultry consumption, and religious attendance. To test our hypotheses, in addition to main effects of migration status, we also consider interactions between migration status, on the one hand, and gender and municipality of residence, on the other. The regression coefficients reported below are not weighted. To adjust for clustering of observations within *bairros*, we fit random intercept models, i.e., models that allow random variation of the intercepts of outcome variables by *bairro*.

## RESULTS

### The sociodemographic profile of war migrants, non-war migrants, and long-time residents

Table 1 presents the distribution of selected sociodemographic characteristics for the entire sample and for each of the migration-status group. By design, the shares of migrant groups vary considerably between the two municipalities: more than two-thirds of war migrants in the sample were Viana residents, in contrast to less than 40% of non-war migrants. The distribution of long-time residents is more even. Both long-time residents and non-war migrants had a balanced gender composition; among war migrants, there were slightly more men than women. War migrants in our sample were the oldest on average, whereas non-war migrants were the youngest. The age differences partly explain the fact that war migrants had the lowest share of those with no current marital partner.

Table 1 about here

The educational level statistics fit the assumption of war migrants' disadvantage: they had both the highest share of those with four or fewer years of schooling and the lowest share of those with nine or more years. Not surprisingly, long-time residents were the best educated. The picture of war migrants' socioeconomic disadvantage is reinforced by the other statistics. Thus although war migrants were much more likely to be gainfully employed outside the home (which reflects both their age and sex composition), they were much less likely than the rest to report having eaten meat or poultry three or more times in the week preceding the survey. They were also much less likely to have a working TV at home, which in addition to indicating their disadvantaged material conditions may also mean reduced exposure to TV-based HIV/AIDS educational information. At the same time, war migrants had the rate of home ownership comparable with that of long-time residents (and higher than that of non-war migrants). In the Luanda context, however, home ownership is more a measure of place attachment than of material assets as dwelling quality varies greatly. (We do not use any characteristics of housing quality because the type of housing and availability of municipal services differ greatly between the two municipalities). The last indicator is church attendance (Luanda's population is almost entirely Christian), which represents both the degree of integration into community and moral orientations that may reduce risky behaviour. War migrants had the largest share, one-half, of those who attended religious services at least once weekly. Long-time residents had slightly lower attendance, while church attendance among non-war migrants was by far the lowest.

#### HIV/AIDS knowledge, views, and behaviour by migration status

Table 2 shows the distribution of HIV/AIDS-related outcomes by migration status and within each migration-status category by gender. A large majority of respondents understood that HIV/AIDS has an asymptomatic stage during which an infected person may show no signs of illness. The corresponding share was somewhat lower among war migrants but even among

them it was three-fourth. Yet, while male war migrants were no different from the rest of the surveyed men, female war migrants had by far the lowest percentage of those with this basic understanding of AIDS symptomatology. War migrants were least likely to know someone with HIV or AIDS, but the difference between them and non-war migrants was much smaller than that between them and long-time residents. Interestingly, women, in general, showed greater familiarity with HIV/AIDS cases, but the gender gap was smallest among war migrants. Within the female subsample, war migrants had a much lower share of those who knew of someone with HIV than non-war migrants and especially long-time city dwellers.

Somewhat surprisingly, war migrants also had the highest share of those who had attended a formal HIV/AIDS educational event, even though their advantage over the other two groups was rather modest. Notably, men in all three migration status groups reported a higher level of attendance than women. HIV/AIDS proved to be a common topic of informal communication, with long-time residents displaying a somewhat higher share of those who had ever engaged in such communication than the other two groups. Women in all three migration categories had a lower proportion of those who reported informal conversations on HIV/AIDS, with that proportion being particularly reduced among war migrant women.

Table 2 about here

Although a vast majority of respondents knew of at least one place where condoms could be obtained free or for a price, that knowledge was markedly less common among war migrants than among the other two groups. Again, this difference was largely due to a very low share of war migrant women who knew of a place where to acquire condoms, even though the gender gap was also present in the other two migration-status groups. War migrants also had the smallest share of those who knew where one could get tested for HIV, with a twenty percentage-point difference from long-time residents but a much smaller gap with non-war

migrants. Once again, female war migrants were by far the least likely to know of a HIV testing clinic. Finally, war migrants had the lowest percentage of those who had ever been tested for HIV. Interestingly, a slight gender gap favouring women was present among non-war migrants and long-time residents but not among war migrants, probably reflecting war migrant women's more limited access to prenatal care, of which HIV/STI screening is increasingly a part.

Although war migrants had the largest proportion of those who thought of themselves as being at high risk of infection, the differences in self-assessment of risk across the three migration categories are very small. The differences become more pronounced when it comes to being very worried about getting infected, with war migrants appearing in general less preoccupied with the possibility of infection than the other two groups. Notably, war migrant women stand out as being least likely to worry about contracting HIV.

War migrants were least likely to deem acceptable for a wife to insist on her husband's using condom in sexual intercourse with her if she suspected that he might have HIV, which might point to a more patriarchal mindset of this group. On the other two attitudinal indicators, however,—whether it is acceptable for a wife to leave her HIV-positive husband and for a husband to leave his HIV-positive wife—the differences among the three migration-status groups were less pronounced. On both of these indicators, long-time residents, more urbanized and presumably more tolerant, were least likely to consider abandoning an infected spouse an acceptable option, while the differences between the two migrant groups were not large.

When we turn to more direct indicators of HIV/AIDS risks, we can see that war migrants had a higher average number of partners, but the variation across the migration-status groups was minimal. Not surprisingly, men reported a higher average number of partners than women in every migration status category, but the gender gap was particularly wide among war migrants. Interestingly, war migrants had the lowest share of respondents in live-out relationships, while non-war migrants had the highest share. Non-war migrants were also most likely to be in risky relationships (live-out relationships without consistent condom use) whereas the shares of

respondents in such relationships among war migrants and long-time residents were very similar. Once again, we can observe predictable gender differences in all three groups, but interestingly, both live-out relationships and risky relationships were particularly unlikely among female war migrants.

### Multivariate results

The inclusion of control variables, especially education, tends to erase most of the migration status-based differences in knowledge and attitudinal outcomes. The only difference that withstands the addition of controls is that between war migrants and long-time residents in the knowledge of HIV testing places. Whereas gender proves relevant, with women appearing generally less knowledgeable about prevention, interactions between migration status and gender do not add any explanatory power. Neither main nor interactive effects of municipality are significant. We therefore do not show these results (they are available on request from the corresponding author).

The multivariate results for the three outcomes that represent behaviour potentially leading to increased risks of HIV infection are generally more informative, and we present the complete sets of regression estimates in Table 3. For each outcome, we show three models: a baseline model with just the main effects of migration status, a model with main effects and controls, and a full model that includes main and interactive effects and control variables. Interactions between migration status and municipality yield no significant effects, and their additions do not improve the model fit for any of the three outcomes. We therefore drop the corresponding interaction terms from the models and instead focus on interactions between migration status and gender.

Table 3 about here

The first panel of Table 3 presents coefficients from Poisson regression models predicting the number of sexual partners in the past year. The baseline model shows no statistical differences among migration-status groups. In the second model, which includes the main effects of migration status as well as the control variables, no differences between war migrants, on the one hand, and either long-time city dwellers or non-war migrants can be observed either. We do see a strong effect of gender: women report significantly fewer partners. When we add the interaction terms, the picture does change somewhat. The negative coefficient for the main effect of being a long-time resident rises in magnitude and becomes statistically significant. Because this coefficient now stands for the net effect of being a long-time resident man, this result implies that male long-time residents are likely to have fewer partners than their war migrant counterparts. The main effect of being a non-war migrant, on the other hand, is not significant. Finally, although both interaction coefficients are positive, only the term for being a long-time female resident has a marginal level of statistical significance ( $p < .10$ ), pointing to possible differences between long-time resident women and war migrant women.

The second panel of Table 3 presents the models predicting whether or not the respondent had any current non-coresident sexual partner (i.e., was in a live-out relationship). The baseline model confirms the earlier observed bivariate pattern, even though the difference between war and non-war migrants is only marginally significant. The addition of controls effaces this difference between the two types of migrants. Notably, as with the previous outcome, gender displays a strong and highly significant association with the odds of having a live-out partner as women were much less likely to report such a relationship. The magnitude of the main effect increases greatly as we add the interaction terms, pointing to a particular wide gender gap among war migrants. Having lived in Luanda for a long time decreases the likelihood of engaging in a live-out relationship but does so only for men. In fact, the statistical significance and the magnitude of the interaction term for gender and long-time residence suggests that long-time female residents are more likely to find themselves in live-out relationships than

female war migrants. Both the main and interactive effects for non-war migrants display a similar pattern of relationship, but this relationship is much weaker and is statistically non-significant, implying, again, the lack of appreciable differences between war and non-war migrants.

The models presented in the third panel of Table 3 predict the odds of being in a risky partnership (relationship with a live-out partner without regular condom use). It can be recalled that on this outcome the differences across the migration status groups were small, with only non-war migrants standing out. The baseline model indicates that the modest differences observed in Table 2 are not statistically significant. The picture does not change much after we add the controls. When interaction terms are included, however, we detect a negative significant main effect of long-time city residence, similar to that in the model for the previous outcome (which is not surprising given that the two outcomes are closely related). Whereas the higher risks of men who migrated due to war, relative to risks of male long-time city residents, are statistically significant, the reduction in risks for long-time female residents is much more modest and is not statistically significant. As in the previous set of models, the differences between war and non-war migrants are negligible.

In the statistical tests presented above our primary interest was to examine how war migrants might be different from long-time city dwellers and non-war migrants. Accordingly, all the models used war migrants as the reference category. In order to assess possible differences between the other two categories of migration status, we flip the variables around. The results of this exercise do not add any new information, except possibly for an observation that male war migrants, like the non-war ones, display a somewhat greater propensity toward having unprotected intercourse with live-out partners, relative to long-time residents (however, this tendency in the case of non-war migrants is not significant at  $p < .05$ ).

We also look at migrants, war-related and unrelated, separately from city natives, controlling for duration of life in Luanda. Again, no differences in multivariate models can be detected. We

therefore do not present the results of these additional tests here (they are available upon request). We should note that in none of the models predicting behaviour the effect of municipality of residence is statistically significant. The effects of some control variables are informative but because they are not in the focus of the study, we let the readers evaluate them without any additional comments.

For an easier grasp of our main results Figure 1 plots the mean number of partners for each of the six migration-gender combinations as predicted by the multivariate model. Figure 2 depicts predicted probabilities of the two other outcomes—engaging in a live-out relationship and engaging in risky sex. Although these graphs are meant to provide a visualization of the results, they must be interpreted in conjunction with the estimates presented in the tables.

Figure 1 about here

Whereas overall the predicted average numbers of partners are not large, it is highest for male war migrants, followed by male non-war migrants and long-time male city residents. Women in each migration status categories had fewer partners than did men, but the gender gap seems particularly large among war migrants, echoing the distributions presented in Table 2. In fact, as was the case of the observed number of partners, war migrant men had the largest predicted mean number of partners and war migrant women had the smallest predicted mean number of partners among all the migration-gender combinations.

Figure 2 about here

The patterns of predicted probabilities of currently being in a live-out relationship and currently being in a risky relationship are quite similar to that of the predicted mean numbers of sexual partners. Yet the predicted probabilities are rather different from the observed probabilities.

Other things being equal, war migrant men have a 40 percent likelihood of being in a live-out relationship, compared to 37 and 29 percent for non-war migrant men and long-time resident men, respectively. The same pattern among the three categories of men holds for being in a risky relationship. It is also clear, however, that the differences between the two groups of male migrants are not very pronounced. Women are much less likely than men to be in live-out partnerships, and the trend by migration status among women seems, in fact, the opposite of that among men. Conforming to the pattern observed in Figure 1, migrant women display the lowest probability for both outcomes and the gender gap is the largest among war migrants.

## CONCLUSION

In this paper we set out to examine possible connections between forced migration and HIV/AIDS risks. Our hypotheses were based on the assumption that forced migrants would be economically disadvantaged and socially marginalized; these disadvantages and marginalization were expected to translate into higher risks for HIV, compared to long-time city residents and war-unrelated migrants. Indeed, war migrants' socioeconomic profile fit our expectations. Notably, we detected considerable variations in knowledge and attitudes by gender. Even though gender differences were present in all migration status groups, war migrants stood out, especially with respect to access to prevention and testing. However, the socioeconomic characteristics as well as age differences between war migrants and the other two groups explained away most of the migration status-based differences and migration status-gender interactions in knowledge and attitudes about HIV/AIDS and in access to prevention

Although with respect to knowledge and attitudes our hypothesis regarding interactions between migration status and gender was not confirmed, we did find the expected pattern of gender-migration status interaction in the analysis of HIV/AIDS-related behaviour. War migrant men proved most likely than either of the other two migration status groups to engage in behaviour that might entail heightened risks of HIV infection. Interestingly, while among men the

predicted probabilities of risky behaviour decreased as one moved from war migrants to non-war migrant to long-time residents, among women the tendency was exactly the opposite (even if someone less pronounced). These results are generally congruent with our expectations and underscore the importance of applying a gendered lens to the analysis of the migration—HIV/AIDS nexus.

While male war migrants seemed to be at the highest risk of HIV/AIDS infection, we should emphasize that only the differences between war migrant men and long-time resident men were statistically significant. On the other hand, while behavioural risks of female migrant women appeared lowest of all migration status-gender categories, they were not statistically different from those of other women. Our results, therefore, should not be taken as definitive evidence of male war migrants' disproportionately high HIV/AIDS risks (or female war migrants' disproportionately low risks). These results align with the literature that questions simplistic assumptions about the connections between forced migration and HIV/AIDS risks (e.g., Hankins et al. 2002; Spiegel, 2004). One must also be reminded that in a context of a war-ridden country like Angola the very distinction between forced and voluntary migration is relative: the latter is inevitably also affected by war but perhaps less strongly and directly than the former.

The analysis did not find support for our hypothesis regarding the community-level effect of forced migration: HIV/AIDS knowledge, attitudes, and risks did not vary significantly between the areas with high and low presence of war migrants and no interactions between migration status and municipality were statistically significant. These results should be treated with caution. Being part of the same metropolitan area, Samba and Viana may not be different and self-contained enough to produce noticeably distinct social milieus that would amplify or dampen their residents' risks. At the same time, more refined measures of community migration-related environment, had they been available, could have proven more useful. Finally, we could not find any appreciable effects of time since migration for migrants who came to the city after the collapse of the first peace accords in 1992.

Two main limitations of our study should be reiterated. First, it is based on data from only two municipalities of one city: the effect of war migration on HIV/AIDS views and risks may be different in other parts of Angola, not to mention other post-war developing settings. And second, as in any survey dealing with sensitive sexual matters, our respondents may have misreported their exposure to risks of HIV/AIDS, especially through their non-marital sexual encounters, even though the available literature does not indicate that misreporting should vary by respondents' migration status.

Further research is needed to better understand the intricacies of war-related migration and war migrants' incorporation into receiving societies and their implications for HIV/AIDS and similar health risks. We see two main directions in which future research would be particularly promising. First, more and better indicators of migrants' economic and social positions are necessary; these measures would allow for a more comprehensive and accurate assessment of war migrants' integration into host settings and for more adequate comparisons of this process between war and non-war migrants. Second, more reliable, gender-sensitive measures of exposure to sexual risks must be devised. Such new measures would help reduce the underreporting of sexual partnerships by women (and a likely overreporting of such partnerships by men). More importantly, however, even if women's sexual encounters are less numerous than men's, the gender power dynamics of sexual relations, which greatly constrain women's choices and negotiation abilities, may make these encounters far more hazardous. It remains to be investigated whether the baggage of forced migration experience further amplifies these gender differences and expose war migrant women to disproportionate risks.

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**Table 1. Sociodemographic profile of three migration status groups (percentage unless noted otherwise)**

	<b>War Migrants</b>	<b>Non-war Migrants</b>	<b>Long- time residents</b>
Municipality			
Samba	30.0	60.8	55.0
Viana	70.0	39.2	45.1
Woman	44.4	51.4	49.6
Mean age (Standard deviation)	29.7	25.3	27.9
Lives in family-owned dwelling	82.9	74.0	84.7
Educational level			
Four or years of less	35.9	21.9	18.1
Five to eight years	46.8	56.7	49.9
Nine years or more	17.3	21.4	32.0
Currently in a marital partnership	83.4	79.6	78.4
Currently works outside the home	81.2	60.7	63.8
Household owns a TV set	50.9	71.3	78.6
Ate meat or chicken at least three times in past week	43.2	69.6	67.6
Attended church at least once a week in past two weeks	50.2	39.8	46.5
Number of cases	222	181	677
Percent in the sample	20.6	16.7	62.6

**Table 2. HIV/AIDS-related outcomes by migration status**

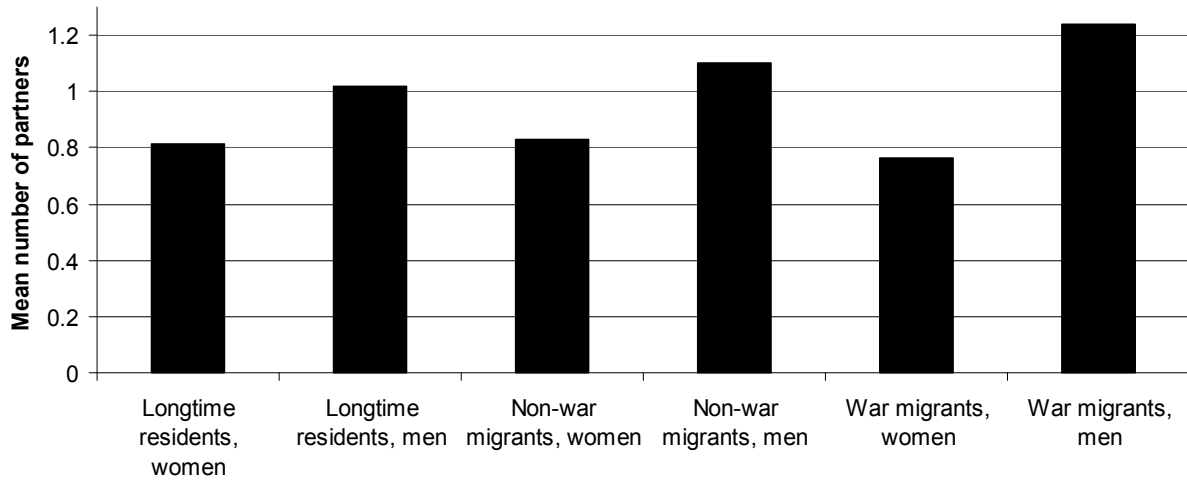
	War migrants			Non-war migrants			Long-time city residents		
	All	Men	Women	All	Men	Women	All	Men	Women
<i>Knowledge and access to prevention</i>									
Healthy-looking person can be HIV+	75.2	89.5	57.1	80.7	89.8	72.0	80.7	89.7	71.6
Knows someone with HIV	21.1	19.4	23.2	27.6	20.5	34.4	36.8	31.1	42.7
Attended an AIDS educational activity in past 12 months	40.8	45.8	34.7	35.2	40.7	30.1	36.1	39.9	32.2
Informally talked about AIDS prevention	63.7	75.0	49.5	63.5	70.5	57.0	69.7	76.3	63.1
Knows where to get condoms	72.1	87.0	53.5	85.5	91.8	81.7	86.0	91.7	80.3
Knows where to get tested HIV	44.4	50.0	37.4	51.9	52.3	51.6	64.7	68.8	60.6
Has ever been tested for HIV	11.2	11.3	11.1	16.0	13.6	18.3	16.9	15.3	18.5
<i>Perceptions and attitudes</i>									
Very worried about getting infected	42.3	53.2	28.6	51.1	67.1	35.9	53.6	56.9	50.3
Considers self at high risk of infection	29.3	36.3	20.4	25.4	34.1	17.2	27.9	36.2	23.1
Acceptable for wife to insist on condom when suspicious of husband's HIV status	64.2	58.3	71.6	67.2	62.5	71.7	75.9	73.7	78.1
Acceptable for husband to leave wife if she is HIV+	30.9	33.1	28.3	30.4	30.7	30.1	23.6	20.0	27.2
Acceptable for wife to leave husband if he is HIV+	27.6	27.6	27.6	23.8	26.1	21.5	20.0	15.9	24.2
<i>Behaviour</i>									
Mean number of sexual partner in past 12 months (standard deviation)	1.09	1.31	.81	1.01	1.19	.83	.99	1.10	.86
Currently in a live-out partnership	23.8	31.5	14.1	33.7	42.1	25.8	28.8	32.6	25.0
Currently in a risky partnership	17.5	22.6	11.1	22.7	28.4	17.2	16.8	19.4	14.3
Number of cases	222	124	99	181	88	93	677	341	336

**Table 3. HIV/AIDS behavioural outcomes: parameter estimates and standard errors (random intercept Poisson and logistic regression models)**

	Number of partners in 12 months <sup>a</sup>			Being in a live-out partnership <sup>b</sup>			Being in a risky partnership <sup>b</sup>		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
<i>Migration status</i>									
Longtime city dweller	-0.104 (0.076)	-0.094 * (0.081)	-0.195 * (0.099)	0.183 (0.185)	-0.170 (0.209)	-0.524 * (0.264)	-0.163 (0.214)	-0.360 (0.227)	-0.572 * (0.290)
Non-war migrant	-0.077 (0.098)	-0.043 (0.104)	-0.118 (0.132)	0.408 + (0.227)	0.008 (0.253)	-0.139 (0.332)	0.189 (0.259)	-0.068 (0.273)	-0.140 (0.357)
[War migrant]									
Woman		-0.284 ** (0.072)	-0.482 * (0.147)		-0.560 ** (0.177)	-1.239 ** (0.395)		-0.461 ** (0.220)	-0.878 * (0.440)
<i>Interaction terms</i>									
Longtime city dweller*woman			0.254 + (0.163)			0.905 * (0.429)			0.596 (0.478)
Non-war migrant*woman			0.196 (0.208)			0.428 (0.519)			0.207 (0.573)
<i>Control variables</i>									
Age		0.095 ** (0.022)	0.091 ** (0.022)		-0.123 * (0.059)	-0.145 * (0.059)		0.006 (0.063)	-0.010 (0.066)
Age squared		-0.001 ** (0.001)	-0.001 ** (0.001)		0.001 (0.001)	0.001 (0.001)		-0.001 (0.001)	-0.001 (0.001)
Lives in family-owned dwelling		0.055 (0.082)	0.037 (0.083)		-0.062 (0.207)	-0.090 (0.210)		-0.069 (0.228)	-0.054 (0.235)
Household owns a TV set		0.133 + (0.078)	0.146 + (0.079)		0.262 + (0.195)	0.352 + (0.198)		0.002 (0.212)	0.052 (0.220)
Education									
[Four or years of less]									
Five to eight years		-0.026 (0.088)	-0.037 (0.090)		0.335 (0.237)	0.213 (0.241)		0.312 (0.261)	0.229 (0.272)
Nine years or more		0.067 (0.101)	0.058 (0.102)		1.085 ** (0.261)	0.964 ** (0.262)		0.633 * (0.291)	0.562 + (0.300)
Works outside the home		0.196 * (0.081)	0.204 + (0.081)		0.195 (0.183)	0.233 (0.186)		-0.029 (0.204)	0.016 (0.212)
Samba resident		-0.006 (0.066)	0.001 (0.067)		0.131 (0.169)	0.154 (0.169)		0.288 (0.210)	0.276 (0.213)
Ate meat or chicken 3+ times/wk		0.046 (0.068)	0.052 (0.069)		0.125 (0.165)	0.141 (0.168)		0.101 (0.184)	0.122 (0.192)
Attended church 1+ times/wk		-0.105 + (0.063)	-0.120 + (0.064)		-0.400 ** (0.153)	-0.443 ** (0.155)		-0.371 * (0.170)	-0.414 * (0.176)
Number of cases		1081	1081	1081	1081	1081		1081	1081

Notes: <sup>a</sup> Poisson regression; <sup>b</sup> logistic regression; references categories in brackets; standard errors in parentheses; significance level: \*\* p<.01; \* p<.05; + p<.1.

**Figure 1. Predicted mean number of sexual partners in the past 12 months**



**Figure 2. Predicted probabilities of being in live-out partnership and in risky partnership**

