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Mental and Physical Health Consequences of Repatriation for Vietnamese Returnees: A Natural Experiment Approach

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ABSTRACT

While there is much speculation about the potential consequences of repatriation, systematic comparisons of health outcomes employing standard measures and appropriate population-based samples of migration returnees and non-returnees are virtually non-existent. This study addresses this significant gap in the empirical literature by employing standard measures of mental and physical health outcomes for comparable samples of repatriated international migration returnees now living in Ho Chi Minh City; never-leavers living in the same urban wards; and emigrants from Vietnam who successfully settled in a major U.S. metropolitan area (total n=709; data were collected between 2003 and 2005). Key outcome measures examined include eight health subscales from the SF-36; depression; affect balance; blood pressure; BMI and waist-hip ratio; and two behavioral indicators of stress (alcohol and cigarette consumption). The results revealed consistent health disadvantages for the returnees on self-reported mental and physical health outcomes and for blood pressure with respect to our comparison groups of never-leavers and immigrants.

Key words: Vietnam, refugees, repatriation, returnee, selection effect

INTRODUCTION

National and international conflicts and crises have resulted in the displacement of tens of millions of people. Repatriation is one of a wide range of responses to such displacements. Recent large scale efforts made by United Nations High Commission for Refugees (UNHCR) include not only the repatriation of large numbers of Southeast Asian refugees during the mid-1990s (UNHCR 2000), but also the return of over three million refugees to Afghanistan (UNHCR 2004), a million refugees/internally displaced persons back to Bosnia and Herzegovina, and half a million people back to southern Sudan (UNHCR 2004). According to UNHCR, an estimated 11.6 million refugees have been repatriated back to their countries of origin over the past 10 years, with 3 million in 2004, 1.1 million in 2005, and 734,000 in 2006 alone (UNHCR 2005; 2007). UNHCR, UNDP and numerous non-profit organizations (NGOs) have developed programs to facilitate the social and economic reintegration of returnees into local communities. While the possible health and psychological needs of returnees back in their country of origin merit an occasional mention in lengthy reports focusing on returnees (UNHCR 1997), systematic and scientific documentation is virtually absent. Documentation of the effects of repatriation is complicated by the fact that those who emigrate are likely to differ on key attributes from those who remain behind; and those who are eventually repatriated are likely to differ from those who are not. These pre-existing differences are often referred to as selection effects.

After the fall of Saigon [1] and the collapse of the South Vietnamese government in 1975, hundreds of thousands fled newly re-unified Vietnam and reached countries of temporary asylum. Most were eventually accepted for settlement in several countries of final destination, principally in the United States. Beginning with a major change in

[1] Saigon was renamed Ho Chi Minh City (HCMC) in 1976 following the reunification of Vietnam.

policy instituted by these destination countries in June of 1989 (more details are provided in the next section), a substantial number were repatriated back to Vietnam. This return of large numbers of Southeast Asian refugees during the mid-1990s constituted one of the major UNHCR's repatriation efforts (UNHCR 2000). UNHCR, UNDP along with other organizations have developed extensive programs to facilitate the reintegration of those returnees into local communities, by offering resettlement funds to help them restart their lives, temporary salary subsidies, loans to reconstruct houses and business start-ups, and training to gain new employment (Nickerson 1995; UNHCR 1996; Ballard 2002). UNHCR closely monitored this repatriation effort up until around 2000. However, there has been no follow-up since 2000 to determine the longer-term impacts of repatriation on the wellbeing of returnees to Vietnam.

This study exploits the major change in Southeast Asian refugee resettlement policy in 1989 as a "natural experiment" to address some of these significant gaps in what we know about the effects of repatriation upon the health status of returnees. Before the change in policy, essentially all refugees who departed Vietnam and reached a first asylum camp were eventually settled in the West. After the change, only a small proportion of those reaching the camps were eventually re-settled in the West; nearly all of these individuals were repatriated to Vietnam. Thus, those who left Vietnam but reached the first asylum camps after June 1989 (and were mostly repatriated) share many characteristics with those who left but reached the first asylum camps before 1989 (and were mostly settled abroad); both of these two groups attempted to emigrate from Vietnam. While these returnees and immigrants live in vastly different social and economic settings (Vietnam and the U.S., respectively), returnees and never-leavers share the same environment (the same neighborhoods in HCMC). Thus, this 1989 change in

resettlement policy provides substantial leverage on both selection and contextual factors that generally confound comparisons between returnees and other groups. We also employ internationally-recognized measures to assess these health outcomes, and make these assessments several years after the returnees' repatriation.

BACKGROUND

A. Vietnamese migration and return stemming from the war in Indochina

The upheaval near the end of the Southeast Asian wars of the 1960s and 1970s displaced countless Vietnamese families from their homes (Banister 1993; Zhang *et al*. 2001), many permanently. The final phase and aftermath of the conflict resulted in the departure of large numbers from Vietnam (Montero 1979; Kelly 1977; 1986; Davis 2000). This exodus is often characterized as occurring in three waves (Stone and McGowan 1980; Kelly 1986; Gold 1992; Campi 2005). The initial wave started just before the collapse of the South Vietnamese government in 1975 and included many former South Vietnamese military and civilian officials and their families, who escaped with the help of their U.S. allies. The second wave, which occurred between 1978 and the late 1980s, was a massive exodus of clandestine emigrants by both land and sea, resulting from discontent with the new regime and post-war political and societal upheaval and with the hope of resettlement in the west. This wave included many rural farmers or fisherman as well as many ethnic Chinese. Many evacuees suffered terribly during their escape, and untold numbers perished (Fox *et al.* 1995).

In part to stem this dangerous exodus of "boat people" from Vietnam, the United Nations convened the First Geneva Conference on Indochinese Refugees in July 1979 (Stein 1979), resulting in the Orderly Departure Program (ODP). The underlying principle of the ODP was that countries of first asylum would continue to provide

temporary asylum to refugees who arrived on their shores or borders; and that the resettlement countries would accept those who had departed their countries and reached an asylum country.

However, this agreement collapsed in May 1988, when the countries of ultimate destination implemented much more selective criteria (UNHCR 1989; Helton 1993). The new policy, the Comprehensive Plan of Action (CPA), was established in June 1989, and recommended that "mechanisms should be developed to determine the claims of new arrivals to refugee status on a regional basis" (UNHCR 1989; Bronee 1992). This was a dramatic change in policy, before which, nearly all refugees were accepted for re-settlement in the West; after which, only about a quarter of newly arriving refugees were accepted for resettlement (Robinson 1998).[2] For emigrants who departed Vietnam and arrived in one of the first asylum countries after June 1989, only those able to prove a *bona fide* risk of persecution in Vietnam were accepted for resettlement; most (about ¾) were repatriated to Vietnam (Helton 1993; UNHCR 1995). Over 110,000 rejected asylum seekers had been repatriated back to Vietnam by the end of 1997 (Ballard 2002).

B. Theoretical and empirical perspectives on migration and repatriation, and the respective health consequences of each

Migration - along with subsequent adaptation or repatriation – entails numerous challenges, each of which can affect both mental and physical health. Many of these challenges will be particularly stressful for refugees, who often leave under the threat of war and persecution (Lin *et al*. 1979). Before migration even occurs, such persecution (real or imagined), worry, fear, and disaffection may negatively affect health status. Soon-to-be refugees often experience social upheaval and increasing chaos in their

[2] The third wave of re-settlement consisted of a fairly small number of immigrants (about 20,000) accepted for resettlement under the goal of family reunification with relatives already in the United States (Zhou and Bankston 1998).

country of origin before departure (Rumbaut 1991). They often face dispossession, economic ruin, and violence, which can lead to mental health symptoms such as nightmares, persistent fears of death, and violent memories (Kelly 1977; Rumbaut 1991; Mollica *et al*. 1993). During flight, threats to health and life itself are myriad, *e.g.,* bandits and pirates, unscrupulous opportunists, and exposure to injury and disease (Kleinman 1990). More over, not only must they survive displacement from their homes and communities (Papadopoulos 2001), but also inadequate medical/psychological care, language barriers, a lack of legal status, and an almost absolute dependence upon individuals they do not know, all of which may tax their health (Knudsen 1983; Nezer 2000). Each of the temporary way-stations will contain hazards, not the least of which is the insecurity of not knowing when or how their journey will end. Finally, once the move is complete, even for those who are returning to the familiar environment of their homeland, economic difficulties, prejudice and discrimination, and disaffection all may pose continuing threats to well-being (Stone *et al*. 1980; Strand and Jones 1985).

Existing studies on the effects of migration on health focus on how changes in the physical and social environment can affect the health status of migrants (Hull 1979). A basic underlying theme, as discussed above, is that the disruptions of moving to a new environment can negatively affect health and well-being (Hull 1979; Strand and Jones 1985; Kuo and Tsai 1986; Findley 1988; Kibria 1993). More positively, some refugees benefit from better health care and housing during at least part of their journey, benefits that may have long-lasting effects on health outcomes (Hull 1979). Alternatively – or in addition to the above mechanisms, there is a growing literature that strongly suggests that emigrants are unlikely to be a representative sample of individuals from a sending country. Rather, they may represent those who are sufficiently hardy and have weighed

the perceived costs and benefits of migration and then decided to take on the challenges (and opportunities) that migration entails (Hull 1979; Abraido-Lanza *et al.* 1999; Newbold 2005). The health impacts related to migration, therefore, might result from this self-selection process that begins in the countries of origin – a phenomenon which is commonly referred to as the "healthy migrant effect" (Rumbaut and Weeks 1989; 1996; Abraido-Lanza *et al*. 1999). If this self-selection hypothesis holds, then the returnees may be well-suited to meet these challenges upon their return.

Empirical research on the actual effects of repatriation and reintegration upon refugee returnees back in their country of origin is extremely limited in scope (Maynard 1999; Rogge 1994). Farewell (2001) used open-ended interviews to examine the experience of Eritrea refugee youth returning to their homeland after prolonged exile in Sudan. Families, elders, community solidarity, and combatants were identified as important sources of psychological support among those youth. Sabin (2006) examined the prevalence of mental illness and factors associated with poor mental health among Guatemalan Mayan refugees who were repatriated to Guatemala after spending 12-18 years in refugee camps in Mexico. The study revealed a high level of psychiatric morbidity among them. Being female and exposure to traumatic events were associated with higher levels of mental illness among the returnees, including anxiety, posttraumatic stress disorder (PTSD) and depression. Compared with the Guatemalan refugees who were continuing to live in refugee camps in Mexico, the repatriated refugees reported higher levels of PTSD, but a lower prevalence of depression. However, factors that distinguish who was repatriated from who remained in the camps are not considered in this study, nor are other more general sources of compositional differences between these two groups.

Studies on the health impact of Vietnamese emigration focus predominantly on the adaptation and adjustment of Vietnamese refugees who resettled in the major receiving countries (Fu 2008). A second major literature focuses on the experience of refugees in refugee transit camps (Kunz 1973; Harding and Looney 1977, Rahe *et al.* 1978; Mayadas 1982; Knudsen 1983; Chan and Loveridge 1987; McKelvey 1997). This latter literature suggests a wide range of mental health stressors for refugees while in the first asylum camps, including boredom, uncertainty, helplessness, and isolation. Much less is known about how returnees fare back in Vietnam, particularly regarding their health and well-being. However, it is widely believed that refugee repatriates constitute a vulnerable social group in Vietnam (Ballard 2002). While significant efforts have been made by international organizations and the Vietnamese government to assist the repatriates upon their return (Ballard 2002; Betts 2006), only limited success had been achieved regarding the economic reintegration of Vietnamese refugee returnees back into Vietnamese society during the first few years after their return (Nickerson 1995; Duong and Morgan 2001). According to a 1998 survey of Vietnamese exiles repatriated during the 1990s, technical and vocational education programs contributed only nominally to the economic reintegration of returnees (Duong and Morgan 2001). Physical and mental health indicators have been largely overlooked in these initial assessments. [3]

CONCEPTUAL FRAMEWORK

Our conceptualization of how migration – and especially repatriation - might affect the health status of Vietnamese returnees vis a vis our two comparison groups (immigrants who settled in the U.S. and nationals who never attempted to depart) is outlined in the figure. Predisposing factors - age, sex, socioeconomic status, personality,

[3] One study focusing on a very specific sub-group (unaccompanied children) found no negative effects of repatriation (Loughry and Flouri 2001)

etc. - in the upper left box determine in part who attempts to leave in the first place. Of course, many of these same factors directly influence health outcomes as well, as illustrated by the top arrow in the figure. Unmeasured propensities for risk-taking, for example, will influence decisions to leave under dangerous circumstances, such as those in effect during the post-1975 Vietnamese context. These same underlying factors can also influence a wide array of other behaviors that are unrelated to migration but strongly related to health, *e.g.,* cigarette, alcohol, and seat beat use. Such measured and unmeasured propensities associated with decisions to migrate potentially confound or mask the impacts of the migration experience *per se* upon the health of returnees and immigrants.

The principal relationship that the study aims to investigate involves how emigration and repatriation influences health outcomes. The existing literature strongly suggests that the disruptions of moving, unfamiliarity and stress in a new environment all take a toll on the health of emigrants (Cassel 1974; Findley 1988; Shuval 1993). More specifically for Vietnamese returnees, we hypothesize that the involuntary departure and repatriation experience will have measurable medium and long-term impacts on the health of returnees to Vietnam. Most of these longer-term impacts will be negative, resulting from the cumulative toll of difficult experiences related to their departure, their time in the refugee camps, and their return to Vietnam.

(Insert Figure 1 here)

METHODS

A. Research design

Our major population of interest is Vietnamese returnees living in HCMC. Two comparison groups - Vietnamese Americans and Vietnamese who never left Vietnam -

along with the major change in immigration policy described above provide useful leverage for helping to discern the effects of migration and repatriation *per se* – as opposed to selection – on health outcomes. Before June 1989 essentially all Vietnamese who made it to a country of first asylum were successfully settled in the West (mostly in the United States) – those who eventually settled in New Orleans constitutes our Vietnamese immigrant group. For those arriving in countries of first asylum (including Hong Kong, Indonesia, Malaysia, Thailand, *etc*.) after June 1989, the vast majority was repatriated to Vietnam – those repatriated constitute the returnee group. Those who never attempted to emigrate constitute the never-migrant group.

To make the three samples as similar as possible in a natural-experiment design, the returnees and never-migrants were selected from the same urban wards in HCMC. We specifically chose those urban wards known to have large numbers of returnees. The Vietnamese immigrants, most of whom lived in HCMC before leaving Vietnam, were sampled in New Orleans, Louisiana. This community is one of the largest urban concentrations of Vietnamese-Americans in the U.S.

Comparing the *returnees* with the *never-migrants* on the outcome measures provides an estimate of the combined effects of repatriation and selection (the observed and unobserved characteristics that place one at risk of migration) on health outcomes net of immigration and its associated contextual effects (since neither group migrated to the U.S.). Comparing the *returnees* to the *immigrants* provides an estimate of the combined effects of context (life in Vietnam versus the U.S.) and repatriation on health outcomes net of selection effects (since both groups are subject to the same set of selection effects). On the outcomes where *returnees* differ from both *never-migrants* and *immigrants*, we

attribute these differences to the effects of repatriation *per se*, since this is the essential attribute that only the returnees possess.

B. Data and sample

Data were collected between 2003 and 2005 using face-to-face interviews. Our sample consists of three distinct population-based sub-samples totaling 709[4] working age adults (23-53 years old), including 127 Vietnamese immigrants living in New Orleans; 135 migration returnees to Vietnam living in HCMC; and 447 never-migrants living in the same urban wards in HCMC as do the returnees. The entire set of questions and measurements took about 45 – 90 minutes to complete. Interviewees were thoroughly trained in the collection of all self-reported and physical measures.

Returnees and never-migrants were selected using multi-stage cluster sampling. HCMC has 19 urban districts containing 259 urban wards. Three of these urban districts known to contain large numbers of returnees were selected for study. In each of the three selected districts, 1 ward was randomly selected. In the selected ward, 3 neighborhoods were randomly selected. For each neighborhood, four clusters were randomly selected, and 12 households were randomly selected from each cluster. A complete listing of all adults in these households was compiled using a list maintained by local ward officials. Eligible respondents had lived in HCMC for at least 20 years and were between 25-49 years of age. If there was more than one eligible respondent within the household, a uniform procedure to randomly select a respondent was implemented. There were two refusals among the never-leavers. A random sample of returnees taken from a listing of those living in these same urban wards constitutes the returnee sample. There were no refusals among the returnees.

[4]The original samples included 736 respondents. However, 27 individuals who did not meet the study criterion were excluded from this study, which gave us a final sample of 709working age adults.

For the immigrant sample, eligible individuals were between the ages of 20-54 during the time of the initial survey (summer of 2005); were born in Vietnam; had arrived in the United States between 1975 and 1990; and had been older than 5 years of age when they arrived. These criteria ensure that the respondents were of working age at the time of interview (the ages at which the stresses of immigration and adaptation would be manifested); that the immigrants would have had significant life experience in both Vietnam and in America; and that they immigrated prior to the change in immigration policy in June 1989. A recently-updated population register of Vietnamese-American households in the greater New Orleans area was employed to draw the sample during the summer of 2005. This register is maintained jointly by the principal NGO and the largest Catholic Church serving the area; it includes both Catholic and non-Catholic Vietnamese families, and lists household members by name. Upon arrival at the household thought to have an eligible respondent (the original registers had a list of residents along with their ages), the interviewer followed a procedure to first list and then randomly select an eligible respondent. Data collection was completed in August 2005. Of the eligible households contacted by our NGO collaborators, 128 completed the interview and 46 refused, yielding a response rate of 74%.

C. Measurement

Data collected include social, demographic and economic status indicators, lifestyle-related factors (*e.g.*, smoking and drinking), measures of access to care, occupational injury, and various dimensions of health status. A wide range of health outcome measures were collected, including standard and well-regarded self-rated measurements as well as physical measures, *e.g.*, blood pressure, height, weight, hip and waist circumference, and lung capacity.

Several of the principal health outcomes employed were based upon the SF-36 health assessment instrument (Ware and Sherbourne 1992). The SF-36 has been widely used and is highly regarded as a reliable general health assessment tool, especially for generally healthy populations (McDowell and Newell 1996). It includes eight health subscales: physical functioning; role limitations due to physical health problems; bodily pain; general health perceptions; vitality, energy, and fatigue; social functioning; role limitations due to emotional problems; general mental health. The subscales are computed in such a way that higher scores indicate better health outcomes (Range 0-100). Any difference of ten points or higher on a SF-36 subscale is considered clinically significant (Ware *et al*. 1993). With the assistance of the developers of the SF-36 instrument, the first Vietnamese version of it was constructed, pre-tested, and implemented, as part of the research project described here.

The Vietnamese Depression Scale (VDS), developed by Kinzie *et al.* (1982) specifically for the Vietnamese, was also employed. VDS includes six culturally-specific items associated with depression among the Vietnamese, as well as six questions each about physical and psychological symptoms (Buchwald *et al*. 1993). A person reporting a score of 13 or above is considered clinically depressed (Buchwald *et al*. 1993). Previous studies have consistently documented a high level of sensitivity and specificity for the VDS among Vietnamese residents, refugees and immigrants (Buchwald *et al*. 1993, McKelvey *et al*. 1993; Buchwald *et al*. 1995).

The survey also included the Affect Balance Scale (ABS), developed by Norman M. Bradburn (1969). The ABS is a 10-item rating scale containing five statements reflecting positive feelings and five statements reflecting negative feelings, and is administered to determine overall psychological well-being at a given point in time. One

of the 5 positive items – feel on top of the world - was excluded from the survey as this item did not seem to make sense to Vietnamese respondents during out survey pilot-test. The final scale used in this study included 9 items.

Blood pressure readings were taken using a mercury sphygmomanometer near the end of the interview, after the respondent had been sitting for a while. We employ a widely-used measure that incorporates both systolic and diastolic measures, "biologic effect blood pressure" (Svensson and Lundstrom 1984).

D. Data analyses

Descriptive statistics are presented first to summarize the characteristics of the three samples. Second, bivariate-level analyses show differences on health outcomes across migration status and different socio-economic and demographic groups. Third, multivariate regression models (OLS regression with continuous outcomes and logistic regression with binary outcomes) are estimated to examine the association between migration status and health outcomes, controlling for age, sex, marital status and occupation (our proxy measure for socioeconomic status). The final set of analyses focus on the returnees sample; a separate set of multivariate regression models are estimated to investigate the determinants of health status among returnees.

RESULTS

Descriptive characteristics for each of our three study groups are presented in Table 1. Some differences across the groups are apparent. At the time of interview, both Vietnam-based samples were a bit younger on average (about 3 years) than our immigrant sample. There are more males among our returnees and immigrants, but more

females among our never-leavers.[5] Educational attainment of our returnees is on average lower than that for our never-leavers and immigrants. And our returnees are more likely to fall into the "unskilled, service and agricultural" occupational category than are our never-leavers or immigrants, and less likely to fall into the "professional" category. These differences in socioeconomic status are consistent with the fact that those who evacuated from Vietnam during the final wave were poorer and less educated than those in the first wave of departures. Moreover, the returnees' often prolonged and difficult stays in the refugee camps and their "returnee" status upon return may well have further constrained their educational and occupational prospects. The fairly minor differences in the distribution of marital status are not statistically significant.

The vast majority (93%) of returnees left Vietnam between 1989 and 1991 (results not shown), close to the cutoff date for the policy change. All had experience in refugee camps in a country/region of first-asylum. Their length of stay in refugee camps ranged from 1 to 9 years (the average was just under six years). Returnees were repatriated back to Vietnam between 1991 and 1997, with most (63%) returning during 1996 and 1997. Members of our immigrant sample left Vietnam between 1975 and 1990 (results not shown). The vast majority of them (84%) reported that they first went to a transit country/region before coming to the United States, e.g., Guam, Hong Kong, Thailand, Indonesia, Malaysia, the Philippines, and Singapore. The duration of their refugee camp experience ranged from less than a year to seven years (the average was just under nine months).

Insert Table 1 here

[5] Many more men than women left Vietnam after the war; see Goodkind (1997) for a discussion of some of the implications.

Bivariate differences in health outcomes by migration status are presented in Table 2[6]. Four of the eight SF-36 health scales show statistically significant differences between our returnees and our two comparison groups. Returnees fare worse on *general health* and *role limitations due to emotional problems* relative to immigrants. And returnees also show an additional disadvantage *on social functioning* relative to never-leavers. However, returnees show a better result on the outcome *vitality, energy and fatigue* relative to immigrants (marginally significant at $P<0.1$).

Returnees fare worse on *positive affect* and *blood pressure* than both of our two comparison groups. And the Vietnamese depression scale reveals a significant disadvantage among returnees relative to immigrants[7] (marginally significant at $P<0.1$).

Insert Table 2 here

The associations among demographic, socio-economic background factors and health outcomes are presented in Table 3. As found in other studies of health outcomes, the results indicate health advantages for the young, for men, for the married, for the better-educated, and for those who are occupationally more-privileged.

Insert Table 3 here

Controlling for the above potentially confounding factors, results from multivariate regression analyses (see Table 4) reveal significant disadvantages among the returnees on the SF-36 sub-scale *general health,* as well as *depression, positive affect,* and *blood pressure*, relative to both never-leavers and immigrants. These disadvantages can be attributed to the special status and circumstances associated with the returnee

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[6] We use *post-hoc* multiple comparisons analyses to compare the means across the three groups. The significance levels presented in Table 2 (as illustrated in the last two columns) reflect the comparisons between returnees and never-leavers; and between returnees and immigrants. The Tukey-Kramer test was used in order to account for unequal sample sizes.

[7] Returnees and never-leavers do not differ much on *BMI* and *waist hip ratio*, but these outcomes show clear disadvantages for Vietnamese immigrants living in America.

experience, since this is the only attribute unique to the returnee group. The effects of compositional differences among the groups can also be ruled out, since we control for these in the statistical analyses.

Returnees also fare worse on the SF-36 sub-scale *social functioning*, relative to the never-leavers (but not relative to immigrants). In addition, returnees fare worse on *role limitations due to physical problems* (marginally significant at P=0.06) and *role limitations due to emotional problems* relative to immigrants (but not relative to never-leavers[8]). More positively, returnees fare better on *vitality, energy and fatigue* and *physical functioning* (marginally significant at P=0.10); have lower *BMI* and a lower likelihood of having *high waist-hip-ratio*, as compared to immigrants.

Insert Table 4 here

Focusing on the returnee sample, a final set of multivariate regression models was estimated (results not shown) to explore what factors might be related to poor health outcomes among those repatriated to Vietnam. Key explanatory variables of interest for this set of models include length of stay in the refugee camps in the first asylum countries; length of time back in Vietnam since returning; number of communities lived in since returning; and self-reports of community reaction to their return as returnees. Simultaneously controlling for differences in age, sex, marital status, education and occupational status, our multivariate linear regression models show that longer stays in the first-asylum camps are related to worse outcomes on *depression*. Perceived negative community reaction upon return is associated with higher *waist-hip ratio*. But most of the anticipated associations between these factors thought to be related to return and health

[8] For the comparison between returnees and never-leavers for *role limitations due to emotional problems,* p = 0.21.

outcomes measured are not validated. This is likely due in large part to the small sample of returnees available in the data.

CONCLUSIONS AND DISCUSSION

Our study of how returnees fare back in Vietnam - compared to those who successfully emigrated and to those who never left - shows a pattern of substantial health disadvantages for returnees on a wide range of both self-reported and objective measures of physical and mental health status. This pattern of disadvantage is not merely due to differences in background characteristics among the three groups, nor are they simply the result of selection processes, *i.e.,* pre-existing factors that distinguished returnees from the other two groups before the returnees departed. From a methodological perspective, this is a significant result since other studies that have sought to document possible disadvantages among returnees have been severely hampered by the absence of appropriate comparison groups to control for the potentially confounding influences of such pre-departure selection processes (Farewell 2001; Sabin 2006). While our approach to this methodological challenge is far from perfect, the fact that returnees suffer such a wide range of health disadvantages relative to two comparison groups with very similar characteristics provides very strong evidence that negative health consequences of repatriation for returnees are real and not artifactual. The employment of standard and widely-accepted measures of health status in this study also increases confidence that these disadvantages for returnees are genuine.

Specifically, we reveal disadvantages for returnees on *social functioning* in comparison to never-leavers (but not immigrants). Since these comparisons involve two very similar groups of individuals living in the same place, these differences may be due in large part to unique hardships related to the returnees' departure and repatriation. But

selection cannot be ruled out in such a two-way comparison, since the returnees decided to leave Vietnam while the never-leavers did not. Such pre-departure differences between these groups could be very important. In the context of post 1975 Vietnam, those who suffered the most from the conflicts or those were the most dissatisfied with the new emerging political reality presumably would be more likely to take the perilous risks associated with a clandestine escape.

Returnees also show significant disadvantages on *role limitations due to physical problems* and *role limitations due to emotional problems* relative to immigrants – those who similarly chose to leave, but ended up settling in the U.S. But these outcomes for the returnees are not significantly different from those of the never-leavers. Thus, these differences may be due either to the negative consequences of repatriation or to some negative consequences of living in Vietnam (relative to America).

But returnees also show disadvantages on the outcomes of the SF-36 *general health*, *depression*, *positive affect* and *blood pressure* relative to *both* comparison groups. So while much of the health disadvantage found among returnees from the two comparisons above *may* well be due to repatriation, we are confident that the disadvantages in general health, depression, positive affect, and blood pressure *are* due to repatriation, since this is the only factor that the returnees have that the comparison groups do not.[9] Life for returnees back in Vietnam is likely characterized by heightened stress (as suggested by higher blood pressure), poorer affect and mood (as indicated by

[9] We find no significant differences among returnees, immigrants, and never-leavers on the outcomes SF-36, *bodily pain, heavy drinking* or *heavy smoking*. Disadvantage among immigrants relative to both never-leavers and returnees on SF-36 *vitality, energy and fatigue*; *physical functioning; BMI* and *waist-hip-ratio* seem due to the negative consequences of living in the U.S., *e.g.,* a more sedentary life style and higher fat intake in the U.S. There are no health advantages for returnees relative to never-leavers on our health outcomes. The disadvantages among immigrants on *mental health* and *negative effect*, relative to never-leavers (but not to returnees), *may* well be due to the adaptation of immigrants in the U.S. but we cannot rule out the possibility that these disadvantages may have some grounding in *a priori* pre-migration differences between those who attempted to leave and those who did not.

worse scores on positive affect and standard depression measures), and worse physical well-being (as indicated by lower scores on a standard measure of general health) relative to the two comparison groups, and these health problems are directly attributable to their status as returnees.

Repatriation is often regarded as the end point of a refugee's exile and suffering. However, our findings reveal that the stresses and hardships associated with repatriation have significant health consequences among Vietnamese returnees. And the problems and challenges returnees face after repatriation are unfortunately not short-lived. Working-age returnees in Vietnam suffer poorer health than comparable individuals even when assessed at a point several years after their return. The degree to which these problems experienced by returnees are caused by events and circumstances experienced during their time they were away or by events and circumstances experienced after their return to Vietnam is impossible to know from the data we have available here. Conditions in the camps were difficult for many and the disappointment they experienced due to repatriation may have long-lasting effects. Some may face lingering resentment upon their return due to the fact that they attempted to leave. But whether the problems result from mainly from the period before or after repatriation, the fact that returnees continue to experience them years after their return has important policy implications.

We conclude that refugees' return home after years of displacement is better thought of as the beginning – rather than the end - of a long process of reintegration which entails numerous challenges; others agree (Ballard 2002). UNHCR phased out its major operation in Vietnam in 2002. However, other studies besides ours have shown that returnees remain a disadvantaged group (Duong and Morgan 2001; Ballard 2002). While temporary health services provided as part of the re-entry experience are surely

valuable, they do not address the longer term problems that we identify here. Much longer-term monitoring than what is typically achieved by placement agencies is needed to properly identify individuals with continuing health needs so that they are referred for treatment and care.

Our study has two major limitations. The first limitation is our fairly small samples of working-age adult returnees and immigrants. This problem is lessened somewhat by the fact our sub-samples and even our overall aggregate sample are quite homogeneous. Nevertheless, with a larger sample, we may well have demonstrated additional differences in the health profiles of returnees compared to immigrants and never-leavers. The second limitation stems from the fact that we are employing a natural experiment involving three groups rather than a controlled experiment involving two. It is possible that some of the health disadvantages we report for the returnees relative to both immigrants and never-leavers may have separate explanations, with neither related to repatriation. For example, general health may be worse for returnees than for immigrants because of poorer quality medical care in Vietnam; and may be worse for returnees than for never-leavers because of selection factors. While such thought exercises help illustrate the obvious limits of natural experiments, they also generally run counter to what we know about migration (*e.g.*, that individuals who migrate tend to be more healthy – not less- than those who do not). Thus, our results seem unlikely to be contaminated by this mechanism. Our natural experiment design, while far from perfect, provides important leverage on the confounding effects of selection bias, which has been a key limitation of previous research focusing on the health consequences of repatriation.

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Appendix: figure and tables

Figure 1: Conceptual framework of repatriation and health outcomes

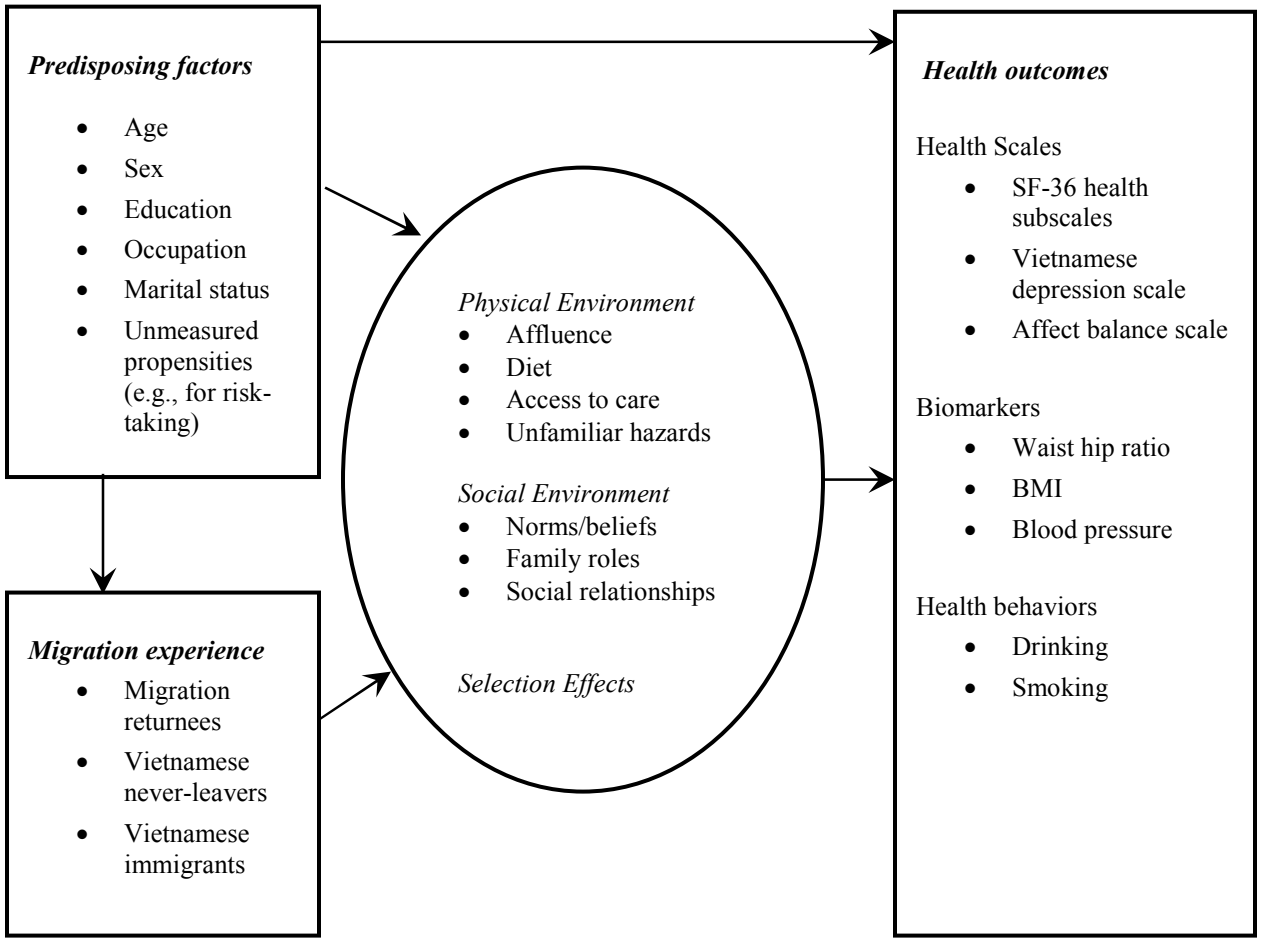

Table 1. Demographic characteristics of study participants (N=709).

Socio-demographic indicators	Returnees (n=135)	Never leavers (n=447)	Immigrants (n=127)
Age (range: 23-53)			
Mean age	38.59 (6.05) ***	38.22 (7.12)	42.01 (4.81)
Median age	39.00***	39.00	42.00
Sex			
Male	61.5%***	42.5%	66.1%
Female	38.5%	57.5%	33.9%
Marital Status			
Never married	21.5%	23.7%	14.2%
Currently married & living with spouse	69.6%	65.1%	77.2%
Separated, divorced, widowed	8.9%	11.2%	8.7%
Education			
0-6 years	63.7%***	36.0%	32.3%
7-9 years	20.7%	26.4%	13.4%
10 years or above	15.6%	37.6%	54.3%
Occupation			
Unskilled, service and agricultural	19.3%***	7.8%	19.0%
Clerical, factory, skilled, sales	11.9%	12.1%	28.6%
Professional	5.2%	9.6%	14.3%
Entrepreneur	35.5%	45.9%	21.4%
Unemployed, other	28.1%	24.6%	16.7%

Note: ^Significant at P<0.1; *Significant at p <0.05; ** Significant at p <0.01 *** significant at p < 0.001.

Table 2: Bivariate associations between migration status and health outcomes (N=709)

Health Outcomes	Returnees (n=135)	Never leavers (n=447)	Immigrants (n=127)	Cronbach's alpha
SF-36 Physical functioning	89.52	89.31	86.94	0.84
SF-36 Role limitations due to physical health problems	79.81	79.59	87.60	0.87
SF-36 Bodily pain	76.96	76.85	77.12	0.82
SF-36 General health perceptions	48.64	52.06	66.42***	0.78
SF-36 Vitality, energy, and fatigue	66.11	64.77	61.34^	0.65
SF-36 Social functioning	83.52	89.15*	82.64	0.69
SF-36 Role limitations due to emotional problems	76.79	80.24	91.60***	0.84
SF-36 General mental health	70.55	72.51	69.20	0.67
Vietnamese depression scale	5.29	4.51	4.07^	0.84
Positive affect	7.16	7.91***	8.49***	0.68
Negative affect	7.35	7.13	7.36	0.76
Biologic effect blood pressure	102.88	98.16***	97.87*	--
Body mass index	22.01	22.12	23.97***	--
Waist-hip ratio	0.84	0.83	0.92***	--
High waist hip ratio (% yes)	34%	41%	77%***	--
#Binge drinking (% yes) (N=342, male only)	17%	16%	16%	--
#Heavy smoking (% yes) (N=342, male only)	21%	18%	22%	--

Notes: ^ significant at the $p < 0.1$ level. * significant at the $p < 0.05$ level. ** significant at the $p < 0.01$ level. *** significant at the $p < 0.001$ level.

SF-36 subscales (range 1-100): Larger scores indicate better health outcomes. VDS (range: 1-28): Higher value indicate higher depression level. Positive affect (range 3-12): Higher score indicates better health outcome. Negative affect (range:5-15): Higher score in negative affect indicates worse health outcome. Biologic effect blood pressure = 0.45systolic + 0.55diastolic; Range: 69-146; N=662. Body Mass Index = Kg/M^2; Range:(13-35); N=669. Waist hip ratio = waist/hip; Range: (0.57-1.21; N=667; High waist hip ratio is classified as WHR >=0.90 for male and > = 0.80 for female. #Binge drinking (male only, N=355): drink 5 shots or more every day. #Heavy smoking (male only, N=355): smoke 5 packs or more cigarettes every week.

Table 3: Bivariate relationships between demographic characteristics and mental heath outcomes (N=709).

Variables	Health outcomes							
	SF-36 PF	SF-36 RP	SF-36 BP	SF-36 GH	SF-36 VT	SF-36 SF	SF-36 RE	SF-36 MH
Age								
23-39	89.75	81.25	77.74	55.35^	65.80*	87.83	80.72	71.56
40-53	88.14	80.89	76.15	52.67	63.10	85.06	82.47	71.53
Sex								
Male	92.44***	86.62***	80.29***	58.91***	67.13***	86.73	84.22*	72.54^
Female	85.35	75.43	73.51	48.93	61.65	87.11	78.98	70.53
Marital status								
Never married	91.50*	85.62	80.41**	55.63	65.62*	87.91	81.05	71.24***
Married and living with spouse	88.49	79.76	76.34	53.86	64.72	86.46	82.19	72.62
Separated, divorced, widowed	86.37	80.14	73.47	51.16	59.80	87.84	79.00	65.04
Education								
0-6 years	87.22*	78.99	75.65	51.48***	62.27*	86.98	80.79	70.68
7-9 years	89.57	80.67	77.02	52.69	64.85	87.81	80.37	71.26
10 years or above	90.43	83.62	78.28	57.54	66.51	86.29	83.33	72.68
Occupation								
Unskilled, service, agricultural and unemployed	87.32**	78.74*	75.31**	52.11***	62.58^	85.18	80.84	68.80***
Clerical; factory; skilled; sales	90.83	84.43	81.77	57.94	64.91	88.33	83.65	70.94
Professional	93.43	90.44	80.32	63.46	68.60	89.89	86.76	76.82
Entrepreneur	88.57	79.55	75.68	51.80	64.88	87.19	80.24	72.97

Notes: ^ significant at $p < 0.1$ level. * significant at $p < 0.05$ level. ** significant at $p < 0.01$ level. *** significant at $p < 0.001$ level.
SF-36 subscales: PF=physical functioning; RP = role limitation due to physical health problems; BP = bodily pain; GH: general health perception; VT = Vitality, energy, and fatigue, SF = Social functioning, RE = Role limitations due to emotional problems, MH = General mental health

Table 3. Continued: (N=709).

Variables	Health Outcomes							
	VDS	Positive affect	Negative affect	Blood Pressure	BMI	High WHR (% Yes)	#Binge drinking (% Yes)	#Heavy Smoking (% Yes)
Age								
23-39	4.37	7.77	7.26	96.65***	21.97***	36%***	18%	16%^
40-53	4.77	7.96	7.16	101.27	22.85	55%	14%	23%
Sex								
Male	4.05**	7.96	6.94***	102.71***	22.82**	50%**	N/A	N/A
Female	5.11	7.77	7.49	95.38	22.03.	41%	N/A	N/A
Marital status								
Never married	4.55*	7.63	7.47*	98.61	21.58***	39%^	21%	17%
Married and living with spouse	4.39	7.96	7.06	99.41	22.78	48%	14%	21%
Separated, divorced, widowed	5.89	7.72	7.64	97.38	21.85	43%	24%	14%
Education								
0-6 years	4.66	7.44***	7.13	101.13***	22.65	52%**	17%	26%*
7-9 years	4.53	7.85	7.14	98.87	22.47	49%	17%	13%
10 years or above	4.52	8.36	7.35	96.72	22.15	37%	15%	18%
Occupation								
Unskilled, service, agricultural and unemployed	5.12^	7.42***	7.39^	100.06	22.23	45%	15%	16%
Clerical; factory; skilled; sales	4.48	8.04	7.40	97.93	22.82	46%	25%	25%
Professional	3.88	8.46	7.18	96.34	22.23	41%	16%	21%
Entrepreneur	4.29	8.06	6.99	99.10	22.50	47%	14%	20%

Notes: ^ significant at $p < 0.1$ level. * significant at $p < 0.05$ level. ** significant at $p < 0.01$ level. *** significant at $p < 0.001$ level.
VDS: Vietnamese depression scale. BMI: body mass index.

#Analyses on binge drinking and heavy smoking include males only, N=355.

Table 4: Multivariate regression analysis on migration and health outcomes (N=709).

Mental health outcomes	Never-leavers Beta	Immigrants Beta	Returnees Beta	R^2
SF-36 Physical functioning				
Model 1: Never-migrants as reference group		-3.55*	-0.78	0.10
Model 2: Immigrants as reference group	3.55*		2.77^	0.10
SF-36 Role limitations due to physical health problems				
Model 1: Never-migrants as reference group		6.85*	-0.93	0.04
Model 2: Immigrants as reference group	-6.85*		-7.78^	0.04
SF-36 Bodily pain				
Model 1: Never-migrants as reference group		-1.50	-0.87	0.06
Model 2: Immigrants as reference group	1.50		0.64	0.06
SF-36 General health				
Model 1: Never-migrants as reference group		13.76***	-4.57*	0.16
Model 2: Immigrants as reference group	-18.33***		-13.76***	0.16
SF-36 Vitality, energy, and fatigue				
Model 1: Never-migrants as reference group		-3.55*	0.75	0.07
Model 2: Immigrants as reference group	3.55*		4.30*	0.07
SF-36 Social functioning				
Model 1: Never-migrants as reference group		-6.52**	-5.39**	0.03
Model 2: Immigrants as reference group	6.52**		1.13	0.03
SF-36 Role limitations due to emotional problems				
Model 1: Never-migrants as reference group		10.82**	-4.18	0.03
Model 2: Immigrants as reference group	-10.82**		-15.00***	0.03
SF-36 General mental health				
Model 1: Never-migrants as reference group		-3.21*	-1.85	0.06
Model 2: Immigrants as reference group	3.21*		1.36	0.06

Notes: ^ significant at $p < 0.1$ level. * significant at $p < 0.05$ level. ** significant at $p < 0.01$ level. *** significant at $p < 0.001$ level.
Control variables in the models include age, sex, marital status and occupation.

Table 4 Continued (N=709):

Health Outcomes	Never-leavers Beta	Immigrants Beta	Returnees Beta	R^2
Vietnamese depression scale				
Model 1: Never-migrants as reference group		-0.42	0.87*	0.04
Model 2: Immigrants as reference group	0.42		1.29*	0.04
Positive affect				
Model 1: Never-migrants as reference group		0.66***	-0.67***	0.08
Model 2: Immigrants as reference group	-0.66***		-1.33***	0.08
Negative affect				
Model 1: Never-migrants as reference group		0.40^	0.32	0.04
Model 2: Immigrants as reference group	-0.40^		-0.08	0.04
Blood pressure				
Model 1: Never-migrants as reference group		-3.87**	2.79*	0.15
Model 2: Immigrants as reference group	3.87**		6.66***	0.15
Body mass index				
Model 1: Never-migrants as reference group		1.38***	-0.28	0.08
Model 2: Immigrants as reference group	-1.38***		-1.66***	0.08
	Odds ratio	Odds ratio	Odds ratio	
High waist hip ratio (yes/no)				
Model 1: Never-migrants as reference group		5.07***	0.84	0.13
Model 2: Immigrants as reference group	0.20**		0.17***	0.13
#Binge drinking (yes/no, males only)				
Model 1: Never-migrants as reference group		1.06	1.22	0.02
Model 2: Immigrants as reference group	0.95		1.15	0.02
#Heavy smoking (yes/no, males only)				
Model 1: Never-migrants as reference group		1.09	1.19	0.02
Model 2: Immigrants as reference group	0.92		1.10	0.02

Notes: ^ significant at $p < 0.1$ level. * significant at $p < 0.05$ level. ** significant at $p < 0.01$ level. *** significant at $p < 0.001$ level.
Control variables in the models include age, sex, marital status and occupation.