



Research Report

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Disruption in Cambodia on the
Current Generation of Older Adults

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Abstract

Cambodia experienced civil strife, political violence and widespread killings during the rule of the Khmer Rouge in the 1970s. Many who died were children or spouses of today's older-aged population. The post Khmer Rouge period was characterized by severe social dislocation and continuing conflict resulting in further losses of children and spouses. There is the possibility that these events eroded the base of core family support for older adults in a country where formal channels of assistance are virtually absent. This paper links two areas within demographic study that having been gaining increased attention in recent years, the consequences of conflict and violence and aging in developing countries, by examining the extent to which current Cambodian elderly experienced deaths to children, spouses, forced migration, and family separation, during the Khmer Rouge period, and the extent to which deaths to children and spouses during the war impact on indicators that are commonly used to measure the welfare of older-adults, specifically, those related to the living arrangements, support and material well-being. Data come from a 2004 representative survey of persons aged 60+ in an area covering over half of Cambodia's population and including Phnom Penh. Results indicate that the influence of the war was widespread. More than one in four surviving older adults in Cambodia report that a child of theirs died due to violent causes during the Khmer Rouge period, and more than one in five report death to multiple children. An interesting, and potentially striking, and on the surface counterintuitive, conclusion is that the impact of deaths to children and spouses are somewhat modest. The reasons for this, elucidated in the conclusion of this paper, include high fertility among the current generation of older adults in Cambodia, the probability that losses during the war depended on family size at the time, and the pervasiveness of poverty in the country today.

INTRODUCTION

Demographic consequences of conflict and violence

War, violence and political conflict have considerable demographic consequences, resulting in excess mortality and displacement of populations, and leads to catastrophic human suffering. Since the end of World War II, internal civil wars fought between ethnic or ideological groups have predominated and have taken place in impoverished areas of the world where infrastructure and means of subsistence are already threatened (Pedersen 2002). Cambodia, the subject of the current paper, is a typical example. By destroying property, disrupting economic activity, damaging health services, and breaking-up families, civil wars around the world generally, and in Cambodia specifically, have resulted in further deprivations, inequalities and in-humane living conditions and distress. On a societal level, they have promoted a dismantling of already weak infrastructure and a weakening of systems of social support. Therefore, in order to gauge the full burden of wars on developing country populations it is necessary to investigate both effects that are direct and immediate, such as deaths to combatants and civilians, mass migrations and refugee flows, and those that are indirect and longer-term, such as the human suffering that is caused by the destruction of social structures, the weakening of health services and the disruption of family cohesion. In poor countries, the latter effects are likely to be dramatic and to linger long after the end of conflict.

The demographic consequences of conflict and violence in the developing world are receiving increased attention (Brunborg and Urdal 2005). A chief concern is estimating the excess mortality attributed to particular wars (Pedersen 2002). For instance, a recent study by Guha-Sapir and van Panhuis (2003) showed the risk of civilian deaths in the Sudan, Somalia, the Democratic Republic of Congo and Afghanistan to be substantially higher during and immediately after civil wars than in pre-conflict times, although they also suggest that mortality levels during war is determined more by pre-existing fragility of the population than by the intensity of conflict. Estimation of excess mortality during and after wartime is complicated by the fact that war is frequently accompanied by the breakdown of civil record keeping, making indirect methods of estimation, such as comparisons of population sizes before and after conflict, or surveys of surviving populations, necessary (Murray et al. 2002).

Studies looking at the indirect consequences of war have also received attention. A good number have examined the short and medium-term impacts of traumatic experiences of war on psychological outcomes, such as post-traumatic stress disorder, depression and anxiety (Babic-Banaszak et al 2002; Butera, Bultinck and Mercier 1999; Farhood et al. 1993; Mollica et al. 1993; Momartin et al. 2003). The impact of war on health infrastructures (Cliff and Noormahomed 1993; Ityavyar and Ogba 1989; Murray et al. 2002), fertility outcomes (Agadjanian and Prata 2002; Blanc 2004), marriage (Laliberte, Laplant and Piche 2003) and disability (Ghobarah, Huth and Russett 2004) are also topics that have received recent attention.

Also gaining attention in recent years is demographic studies related to aging in developing countries. Reasons for the increased attention include rapid population aging taking place in much of the world and more and improved data sources relating to older adults. However, the consequences of conflict and violence have yet to be linked to aging in developing countries. Nonetheless, the disruption of regular daily life and the breakdown of social fabric that has accompanied war in the developing world has potential long-term effects on the family, which in turn influence the prospects for successful aging (Pedersen 2002; Schwab et al 1995). For instance, as individuals get older they also experience changes in health, employment and marital status. In developing countries, where systems for public provision are often lacking, this makes them more reliant on family for physical, material and psychological support. Conflict and violence resulting in excess mortality can deplete older adults of primary sources of support, influencing the chances of aging comfortably and successfully. These effects may be exacerbated with age, as aged survivors of war and its aftermath experience even further physical declines and increased dependency on family.

In this paper, we examine some of the long-term consequences of the civil war that took place in Cambodia in the 1970s, and the radical revolutionary regime that it ushered in, on the current generation of older people in Cambodia. The analysis concerns individuals aged 60 and older in 2004 when a survey of Cambodia's elderly population was undertaken, but were aged about 30 and older during the height of the unrest. The war and its aftermath resulted in a substantial number of deaths, in addition to the displacement of masses of individuals and the dismantling of families. The data we examine allow us to link deaths to family members occurring some thirty years earlier, to measures that relate to support and support structures of the older population in Cambodia today. Because many individuals and indeed entire families die during periods of war and violence, any analysis of a post-war population must be aware of the possibility that selection factors influence the make-up of the sample. Therefore, we are cautious to phrase our research questions around the experiences of and effects for the current generation of elderly, understanding that they are survivors. The questions are: (1) To what extent did the current surviving generation of older adults in Cambodia experience negative events during the civil war and its aftermath during, including death to their children, spouses as well as forced migration and separation of family? (2) To what extent has the experience of deaths to children and spouses had a long-term impact on several common indicators of support including household structure, the receipt of material support, and economic well-being among the current surviving generation of older adults?

Conflict and violence in Cambodia

Studies of the long-term impact of conflict and violence on older adults need to take place within populations that experienced the conflict a generation or more ago. Cambodia is one of the places suitable for such research. Cambodia gained independence from France in 1953 under the leadership of Prince Norodom Sihanouk, but internal political conflicts led to a military coup by General Lon Nol in March 1970 (Neupert and Prum 2003). The regime's hold on the country, however, was weakened by the bombing of Cambodia during the American-Vietnamese war, and this allowed a radical insurgency, called the Khmer Rouge, to take over power in 1975 (Chandler 2000). Led by Pol Pot, fuelled ideologically by radical communist principles, and visioning an ideal agrarian state, the Khmer Rouge forcibly removed individuals from urban centers and placed them into labor camps (Chandler 1999). Former urban dwellers, as well as others, were forced to work long hours with insufficient sustenance and virtually no effective health care. Revolution occurred in other ways. Among other things, the Khmer Rouge abolished currency and the educational system, families were separated under the notion that observance should be to the state rather than to relatives, and the ruling government isolated the country from most of the rest of the world.

According to accounts of survivors and historians, and verified by demographers, the Pol Pot led Khmer Rouge was a particularly brutal and genocidal regime (Chan 2004; Chandler 2000; Chandler 1999; de Walque 2005; Heuveline 1998; Kiernan 2003; Meng-Try 1981; Neupert and Prum 2003; Ung 2000). Hundreds of thousands of executions took place as the regime attempted to rid itself of dissenters. Educators and any others with high levels of education, and all of those that were in any way connected with the previous Lon Nol government, were deemed to be a threat to the regime and were eliminated. At the same time, the regime floundered economically. Food was constantly in short supply and rations for workers were inadequate. Disease and famine resulted. Estimates of the number of excess deaths that occurred during the period vary, but it is certain that the total number for the 1970s was at least one million and more likely above 2 million within a population of about 7 million at the time of the Khmer Rouge takeover (Chandler 1997; Heuveline 1998; Hugué 1991; Keirnan 2003; Keirnan 2002; Keirnan 1996; Meng-Try 1981; Neupert and Prum 2003). As in most wars, the excess mortality has resulted in an unbalanced population, with adolescent and younger adult males being particularly prone to be killed (Murray et al. 2002). Recent demographic analysis clearly indicates that individuals with an urban or educated background were particularly likely to die during Khmer Rouge rule (de Walque 2005).

In January of 1979 Vietnam invaded Cambodia and defeated the Khmer Rouge. The initial effect was another mass movement of the population, as people began to repatriate and look for family members from whom they were separated during the previous four years. Although the Vietnamese attempted to establish some independence for Cambodia, tens of thousands of troops remained, and Vietnam remained clearly in control. But, in September of 1989 the Vietnamese withdrew their troops, partly because of the growing independence of Cambodia's own government and partly due to reduced support from the USSR to Vietnam (Chandler 2000). The United Nations then began assisting Cambodia prepare for its first set of post-war elections, which were held in 1993. Since that time, there has been relative peace, but socio-economic development has been slow and people still face severe living conditions. Poverty is widespread, health care resources are underdeveloped and under-funded, roads and other infrastructure are in poor condition, literacy rates are low, and HIV/AIDS prevalence rates are high (Annear 1998; Beresford et al. 2004; Coates 2005; Huguet et al. 2000; Kola 2004; Lanjouw, Macreae and Zwi 1999; Ott 1997).

Older adults in Cambodia

The isolation of Cambodia during and after the Khmer Rouge, and the abolishment of public media and educational and research institutions, meant that very little information about the country made its way to the rest of the world. As such, little research has taken place in Cambodia until very recently. As an example, the 1998 population census was the first conducted in the country since 1962 (Huguet et al 2000). The census revealed the country to be predominantly rural-agrarian with one major urban center – Phnom Penh, and several much smaller cities (National Institute of Statistics 1999). The ethnicity of the vast majority of the population can be described as Khmer, with a small percent being Chinese, Khmer-Chinese or Cham, and the predominant religion is Buddhism with a small percent of Moslems and Christians. Although agriculture is by far the main occupation in Cambodia, in the last number of years there has been an increase in clothing manufacturers and a rise in the proportion working in garment factories with a subsequent increase in migration from rural areas to cities among adults seeking employment in the industry. Still, the most common migration stream is rural to rural.

According to the most recent Demographic and Health Survey, a little less than 6% of the total population is aged 60 and older, although about one in four households contain an older adult. What little has been written about the social life of older adults in Cambodia has suggested some similarities with older adults living in other countries in the region, particularly with respect to the reliance on family for their physical, material and psychological well-being (Kato 2000; Knodel et al. 2005; Zimmer and Kim 2001). For instance, like other Asian elders, those in Cambodia rarely live alone and most coreside with an adult child. Coresidence with a child is considered to be an important way in which physical assistance is provided to older adults and therefore is itself an indicator of well-being. Cambodia is similar to its neighbor Thailand but unlike neighboring Vietnam, which has a legacy of Confucian influenced traditions in that older adults who live with a married child are more likely to live with a married daughter than a married son. Intergenerational exchanges are an important source of material support for older Cambodians. Although some still work, very few receive a pension, have any lifetime savings, or receive health insurance or welfare benefits. Many older adults are therefore almost entirely reliant upon family for their material well-being.

While social life for older Cambodians may be generally similar to many other older adults living in the region, they live within an overall context of poverty that pervades the country (Coates 2005). As a result, they are more likely than older adults in other countries to be economically and materially deprived. Cambodia is among the poorest countries in the region, with a GNP that only surpasses Laos. Average incomes are very low. Housing, particularly in rural areas, is extremely modest, with most living in very rudimentary structures with earth, bamboo or thatched floors, without toilet facilities, and with very few if any household amenities (Knodel et al. 2005). Most older Cambodians, and particularly older women, are unable to read. Infrastructure in most of the country is poor. There are few paved roads; other

roads are in generally poor condition, and access to quality health care is difficult, particularly in rural areas.

Older Cambodians have several other unique qualities. Recent evidence suggests that they may be in poorer health than older adults in neighboring countries (Kato 2000; Knodel et al. 2005; Zimmer 2005). Preliminary evidence also suggests that the civil wars have impacted living arrangements. Zimmer and Kim (2001) reported that more than 10% of older adult households consist of elderly women living with their widowed daughters, a proportion that seems particularly high and may be a result of deaths to spouses and husbands of daughters that occurred during the 1970s.

DATA AND METHODS

The 2004 Survey of the Elderly in Cambodia (SEC)

Data for this study comes from “The 2004 Survey of the Elderly in Cambodia,” conducted by the Department of Sociology at the Royal University of Phnom Penh in collaboration with the University of Michigan’s Population Studies Center and the Population Council. The survey involved in-person interviews of 1,273 adults aged 60 and older, conducted between April and October of 2004. Interviews lasted approximately one hour and covered a range of topics that are generally applicable to older adults, such as their living conditions and their economic, social and physical well-being. Specific questions were also included to permit the determination of the impact of Cambodia’s turbulent history on the current situation of respondents. As such, the questionnaire asked about the timing and circumstances surrounding deaths of children and spouses and the experience of forced migration during periods of political turmoil. It also included questions about the provision of social support so that these could be linked to events that occurred during periods of conflict and violence. Interviewers were students and staff from the Royal University of Phnom Penh. A very small number of cases where the older adult targeted for interview was incapable of responding to questionnaire items were completed using a proxy, who was a family member.

Cambodia consists of twenty-four provinces, the six most populous of which account for over 50% of the total Cambodian population: Battambang, Kampong Cham, Kandal, Phnom Penh, Prey Veng, and Takeo. These six were purposively chosen for inclusion in the study. The sampling technique followed a multiple stage, systematic probability design that revolved around the selection of administrative Villages using a listing provided by the National Institute of Statistics (2000). There is an over-sampling in Phnom Penh, so a weighting procedure is used to adjust appropriately, and the final weighted sample is representative of the six provinces. In general, the weighted sample produces distributions for most demographic characteristics that match those found in other representative surveys conducted in Cambodia. Table 1 presents both weighted and unweighted distributions with respect to several key demographic characteristics. More detailed information about the survey, the sampling, the weighting, and the composition of the respondents across a number of spheres, are reported elsewhere (Knodel et al. 2005).

Measures and analytical strategy

Our analysis is divided into two sections. We first examine the extent to which today’s older generation in Cambodia experienced several demographic events during the Khmer Rouge period. Based on responses to survey items, we examine reports of the death to children, the death of a spouse, and experiences of migration. In this section, we generally compare the percent experiencing these events prior to, during, and after the Khmer Rouge period in order to determine the extent to which the period was unusual. The Khmer Rouge seized power in the city of Phnom Penh in April 1975 and the Vietnamese invaded in January 1979. In some areas, however, the Khmer Rouge achieved power earlier and considerable struggle persisted after their overthrow. Only more recently have the Khmer Rouge been completely eliminated from a small enclave of the Northwest region of the country (an area not included

in our sample). Although they were in full control for just under four years, we treat the years between 1975 and 1979 as the Khmer Rouge period.

In addition to looking at the extent to which deaths occurred, we compare the chances that deaths were caused by violence versus other causes (e.g. illness, accidents). Violent causes include those where violence was stated outright to be the cause of death of the family member, as well as situations where the member was said to have disappeared, which in the Cambodian vernacular often means they were taken away by soldiers and never seen again, and presumably subsequently killed. Deaths due to malnutrition or illness that are a byproduct of the war are not specifically coded. Although violent deaths were almost exclusively experienced between 1975 and 1979, our results also indicate that deaths from non-violent causes also peaked during the Khmer Rouge period.

To examine migration, the survey asked about moving during four periods of Cambodian history: the period during which the Lon Nol regime controlled the central government between 1970 to 1975; the Khmer Rouge period; the period of Vietnamese control between 1979 and 1989; and the most recent period from 1989 to present when a new Cambodian government was established after several years of United Nations stewardship of the country. The survey asked the reasons for migration, and we code responses into forced versus unforced. We examine the probability of any versus forced migration during these periods. Forced includes the responses of fleeing political situation or violence and simply forced to move. The survey also asked if moves resulting in separation of the respondent from their family. We examine the probability that respondent's experienced the combination of forced migration and separation from family. Results will show forced migration and forced migration together with family separation peaked during the Khmer Rouge period, although again, it is possible that there was some spillover depending upon where in the country the individual was living prior to the period. Repatriation after forced migration was typical after the Khmer Rouge, and this is considered an unforced cause. We also examine migration by rural/urban residence, which for these purposes is measured as the place of residence at the start of the particular period in question.

The second section of the analysis looks at whether deaths to children and spouse have long-term impacts on family composition, support, and material situation of the current generation of older adults, testing the hypothesis that deaths to family have negative impacts on these long-term outcomes. For this part of the analysis, we do not consider the impacts of migration since we have no a priori assumptions about the long-term impacts of migration on support in Cambodia. We associate deaths to children and spouses with the number of children alive today, current marital status and living arrangements, the receipt of material support, and measures relating to current material well-being. The living arrangement and support measures are based on information gathered from a household member and non-coresident children roster. The material well-being measures are based on responses to survey questions.

Although most of our results are based on comparing percent distributions, we also conduct a multivariate analysis. For this purpose, outcome measures are coded dichotomously. For instance, for living arrangements, we examine living with others versus alone, and living with a child versus living without a child. Further specification is provided below. We examine the impact of deaths during the Khmer Rouge period (death of child, multiple children and spouse) on each outcome separately using a logistic regression that controls for several other key characteristics (such as age and sex), and results are presented as mean predicted probabilities.

DEMOGRAPHIC EVENTS EXPERIENCED DURING THE KHMER ROUGE PERIOD, 1975 TO 1979

Death of children

In total, 1,243 older adults reported the death of 2,159 children, an average of 1¾ per older adult. (Thirty cases answered by proxy were not asked about the death of children.) Fifty-one percent of these deaths occurred during the five-year Khmer Rouge period, while 27% occurred before and 22% after. Thirty-six percent of deaths were reported to be from violent causes, but more than 90% of violent deaths occurred during the Khmer Rouge period. Violent deaths account for about two-thirds of deaths during the Khmer Rouge period.

Table 2 shows the percent of older adults that report the death of at least one child before, during and after the Khmer Rouge period, from any cause and from violence. In addition, the table examines at least one death of a son versus a daughter, and deaths to children aged 11 and older are examined separately. Those 11 and older are separated because additional examination of the data revealed that the share of deaths due to violence rise with age but largely level off after age 11. As a result, most deaths prior to age 11 were from non-violent causes, whereas deaths to those age 11 and older during the Khmer Rouge period are almost exclusively due to violence. It is also possible that many of the non-violent deaths, both before and after age 11, were due to causes that were brought about by the conditions associated with the Khmer Rouge rule, such as malnutrition, diseases incurred due to poor health conditions, and a lack of health services to treat disease.

Table 2 provides evidence of the high likelihood that an older adult experienced the death of a child under the Khmer Rouge. While 75% of the sample reported the death of at least one child at some point, the likelihood of experiencing a death was greater during the Khmer Rouge period than before or after (43% versus 29% and 30% respectively), despite its relatively short duration. Twenty-nine percent reported experiencing a child death due to violence under the Khmer Rouge in comparison to about 2% before or after the period. Deaths of sons were more common than deaths of daughters, and son deaths were more likely to be due to violence.

To experience a child death under the Khmer Rouge reign, an individual needed to have at least one child alive during the period. Overall, individuals had an average of 6.3 children ever born. The bulk of these births (75%) occurred prior to the Khmer Rouge takeover, and nearly all individuals (96%) had at least one living child at the time of the Khmer Rouge. Therefore, nearly all individuals were at risk of losing a child during the period. In addition, a vast majority (83%) had at least one child aged 11 and older by the time of the Khmer Rouge.

As Table 2 shows, 49% lost a child aged 11 and older, with 27% reporting the death to a child 11 and older during the Khmer Rouge period, primarily due to violent causes. Like deaths at all ages, sons aged 11 and older were more likely lost than were daughters. Although the percents reported in Table 2 refer to the percent that experienced the death of at least one child, we note that 22% report multiple children dying during the Khmer Rouge period (see Table 6 below).

Death of spouse

Marriage is nearly universal among this sample of older Cambodians. By the time of the Khmer Rouge takeover in 1975, 98% of the current sample had already been involved in a marriage (1% of the sample never married). About 11% of those married prior to 1975 experienced a spouse dying before the Khmer Rouge takeover, but about half of these individuals remarried by then. As such, nearly the entire sample were exposed to the possibility of a spouse dying at some time, while a vast majority were exposed to the possibility of a spousal death during the Khmer Rouge period.

Table 3 displays the likelihood of a spouse dying before, during, and after the Khmer Rouge, for the total sample by sex. More than half of the sample lost a spouse at some point, including about 2/3 of women and 1/3 of men. Some of the gender difference is a function of generally higher mortality rates among men at older ages. But, it is also clear that the Khmer Rouge period was a time of a great many deaths to spouses of today's surviving Cambodian women. About 23% of the women report that a spouse died under the Khmer Rouge, versus only about 6% of the men. Over 15% of women report a spouse died due to violence under the Khmer Rouge, which compares to only about 2% of men. In contrast, Cambodian elders are unlikely to have experienced a spouse dying due to violence before or after the Khmer Rouge rule.

Forced migration and family separation

Although forced migration and family separation are not unprecedented demographic events during periods of conflict and political change, the Cambodian experience is unique with respect to the totality of forced migrations among those who were living in urban areas. This led to great hardships, as

individuals were often required to move by foot and leave all their possessions behind. Those living in urban areas were forced into labor camps where they were considered to be lower class citizens and were often treated severely (Chandler 2000; Kiernan 1996).

Table 4 shows the likelihood that an older Cambodian moved at least once between communities during four different periods of Cambodian history. The top panel shows the percent that moved for any reason. Many older Cambodians moved during the Lon Nol, Khmer Rouge and the Vietnamese period. Very few have moved since.

The second panel shows the percent that were forced out of their home. This was particularly likely during the Khmer Rouge period. Fully 63% of the current sample report being forced to move during this time. There was some forced migration during the Lon Nol period, and some of this is likely due to the start of the Khmer Rouge campaign in parts of the country outside of Phnom Penh. Fifty-nine percent report having moved during the period after the Khmer Rouge, while only 2% report forced migration during this period. Further examination of the reasons for migration verify that large numbers during the Vietnamese period were moving due to repatriation after the end of the civil war. Indeed, more than 80% of movers in the post Khmer Rouge period listed repatriation as a reason for their migration.

The bottom panel shows the percent that were both forced to move and were separated from their family due to moving. Nineteen percent experienced the combination of these events during the Khmer Rouge period. This implies that more than one in four forced moves was accompanied with family separation.

The chances of experiencing any migration, forced migration, and migration resulting in separation of family, was very much a function of place of residence. Almost universally, those living in urban areas at the start of the Khmer Rouge period were forced to move. This result verifies much of what has been written about the treatment of urban residents under the Khmer Rouge.

Summarizing demographic events experienced during the Khmer Rouge period

Table 5 provides a summary of demographic events experienced during the Khmer Rouge period for a sample of individuals that does not include proxy respondents, those never married, and those living in other countries at the start of the period. This table highlights the likelihood that today's older adults were effected in a number of ways that could potentially have long-term influences on support. For instance, 43% lost a child during the period, 29% experienced a child death due to violence, 28% lost a child aged 11 and older, and 22% lost more than one child. Death of spouses and forced migration were also common experiences. The table also shows the frequency with which individuals experienced combinations of events. Nine percent experienced the death of both a child and a spouse during the period, and 7% experienced these two events plus were forced to migrate. Only about 20% did not experience any of these events, indicating that immediate demographic impacts of the war were widespread.

Surviving women were more likely to experience events than surviving men. For instance, the percent experiencing the death of more than one child under the Khmer Rouge was 17% for men and 26% for women, and the percent experiencing the death of a child and a spouse is 2% for men and 18% for women. Part of the gender difference in experiencing death is due to a female advantage with respect to survival. In addition, those living in urban areas at the start of the period more likely experienced a number of these events. While 19% of those in rural areas reported not experiencing any events, the same was true of only 2% of those in urban areas.

LONG-TERM IMPACTS

Death of children and current family size

We now turn to examining how experiences of mortality to children and spouses and forced migration during the Khmer Rouge period impact on current family structure, living arrangements, material support and material well-being among surviving Cambodian elders. We first examine

associations between the death of one or multiple children during the period and the number of children currently alive. Logically, we would expect the death of children during the period to result in smaller families today than otherwise would be the case and hence have implications for the availability of support. It is possible, however, that some losses could be made up for with increased fertility after the period (Heuveline and Poch 2005).

The average number of children alive today for the entire sample is about 4 ½, and this number does not vary much across the experience of children dying. Those with no children dying have 4.7 alive today, versus 4.9 for those that had one child die and 4.2 for those that had two or more children die. However, Figure 1, which presents mean number of children currently alive controlling for the number of children that were alive during the Khmer Rouge period, suggests that losses do have some impact on current family size. For example, those that did not experience any deaths and had two children alive during the period have an average of 2.1 children today. In contrast, those that had two children alive during the period and experienced one or more child deaths have only an average of 1.3 children alive today. For those that had eight or more children alive during the period, those not experiencing a death have 7.1 children today, those experiencing one child death have 6.3 and those losing multiple children have 5.7 children alive today. Depending on the number of children alive during the Khmer Rouge period, those who experienced one child death have between 0.1 and 1.1 fewer children alive today than those who did not experience any, while those with multiple child deaths have between 0.6 and 2.8 fewer. Thus, losses of children during the Khmer Rouge period were not subsequently made up with increased fertility.

The reason that the effect of child deaths on current family size is minimal before controls for number of children alive during the Khmer Rouge period is found in Figure 2. The overall probabilities of losing one and multiple children during the period are .211 and .223 respectively. The figure segregates these probabilities by number of children alive during the Khmer Rouge period, and indicates a strong association between this and the chances of experiencing child deaths. For instance, the probabilities of losing one child and more than one child among those with two alive during the Khmer Rouge period were .171 and .098 respectively, compared to .247 and .307 for those with eight or more children. Hence, those with more children during the Khmer Rouge period were also those more likely to experience child losses, but they are also likely to have a larger number of children still alive today. Since those with few children were less likely to lose any, losses under the Khmer Rouge did not result in rendering many surviving elders childless. Indeed, only 3.5% of the sample overall have no living children today.

Death of spouse and current marital status

Figure 3 shows current marital status by whether or not an older adult experienced a spousal death during the Khmer Rouge period and provides evidence of the probability of remarriage. While about 60% of those who did not lose a spouse during the period are currently married, the same is true for only about 12% of those who did experience a spouse death. Therefore, remarriage overall is infrequent. However, there is a very strong sex interaction. Where about 70% of men who experienced the death of a wife are currently married, the same is true of only 3% of women who experienced the death of a husband. The probability that a man is currently married is only moderately related to the death of a wife during the Khmer Rouge period, while the probability that a woman is married is very much a function of the earlier spousal death. Therefore, the loss of support that may be a consequence of spouse mortality under the Khmer Rouge is almost exclusively a concern for women.

Impact of events on living arrangements, material support and well-being

We now examine associations between the death of children and spouse and indicators that generally relate to the welfare of older adults. The question we ask here is whether those that experienced these events are currently less likely to live with others and with children, are less likely to receive material support from children and are less likely to have favorable levels of material well-being. We presume that the reductions in family size that result from the death of children and spouse result in less

frequent family interactions and fewer intergenerational exchanges, thereby weakening long-term support systems and decreasing options for maintaining adequate material well-being. Therefore, death of children and spouse during the Khmer Rouge period would have a negative impact on the welfare of the elderly.

For comparative purposes, each of the outcomes is dichotomously measured as 0 and 1 such that a 1 represents what would be expected given more favorable welfare. Unfavorable impacts would be indicated by negative associations between deaths to children and spouse and the various outcomes. The living arrangement indicators are whether or not the respondent lives with at least one other person and whether or not the respondent coresides with a child. The support indicators are first, whether or not the older adult reports that at least one child currently provides support for the household in which they live; second, whether or not at least one child has provided any money or other material goods over the last year; third, whether or not at least one child has provided given a 'substantial' amount of money or other material goods. The last measure considers money or other material goods with a value of at least 100,000 Riel (about \$25 USD)¹.

We consider two material well-being indicators. The first measures self-assessed material well-being, combining three survey items: (1) a five-point scale of current economic status relative to others in the community; (2) a four-point scale of adequacy of current income in meeting expenses; (3) a five-point scale of satisfaction with current economic situation. We add the scores on the three items such that the higher the sum, the better the self-assessed situation. For our analysis, we dichotomize the index into whether or not a person falls approximately into the highest quartile on the resultant index. Such an individual would correspond to someone who stated their economic status as average or better, indicated they had just enough or more than enough money for expenses, and had fair or better satisfaction with their income.

The second indicator of material well-being is a household wealth index reflecting the quality of housing and household possessions. The specific items incorporated in the index are: the type of toilet, type of flooring, type of roof, electricity, television or radio, telephone, refrigerator, car or motorcycle, fan or air conditioner, and jewelry. These items were combined into a single index using principal component analysis to derive weights (Filmer and Pritchett 2001). The index scores were then ranked from 0 to 100 based on percentiles. We note that most elderly Cambodians have modest levels of household possessions and live in poor quality housing. For instance, less than half report electricity, and less than a third have jewelry or a car/motorcycle. Thus, for our analysis we define favorable wealth status as being in the highest quartile. Even for many in the highest quartile, however, their absolute living standard is still quite modest.²

Table 6 presents unadjusted results. The first column of numbers provides the percent of the total sample that reports favorable outcomes across the living arrangement, support, and material well-being indicators. Subsequent columns show the percent that report favorable outcomes among those that experienced the death of one child, the death of two or more children, and the death of a spouse. Overall, older Cambodians are very likely to be living with others, with children, to be living in a household that receives support from children, and to be receiving money or goods from children. They are far less likely to be receiving substantial money or goods. Given how we constructed indicators of material well-being, one fourth of the sample have favorable levels for each measure.

There does not appear to be a substantial influence of deaths to children and spouse on these outcomes, and in some instances, the association is in the opposite direction as that expected. There are several possible reasons for this. First, even with losses during the Khmer Rouge period, many still have large families and almost all have at least some children, thus making filial support possible. Second, we earlier showed that, as far as death to children are concerned, the chances of experiencing the event relates to family size at the time of the Khmer Rouge regime. Therefore, the lack of association may not indicate the lack of a causal effect, which can only be determined after adjusting these percents for family size during the Khmer Rouge period. That is, it is possible that the death of a child does impact on intergenerational exchanges but only when comparing individuals of similar family sizes during the Khmer Rouge period. Third, there are other factors that might be obscuring the causal nature of the

associations, including age, sex, and rural/urban residence. For instance, those in urban areas today were more impacted upon by the war, but also have higher socioeconomic standing and may have children better able to provide support to them. Fourth, in some cases the events we are examining may increase the level of support from remaining family if they influences a perceived need. For instance, the results in Table 6 indicate that those that lost a spouse are more likely than others to be receiving substantial money or goods from a child. Possibly those without a spouse are perceived to require support from children, and this perceived need prompts a higher level of support.

In order to control for these confounding influences, Table 7 displays results from logistic regressions predicting the probability of the same outcomes after controlling for age, sex, current place of residence (rural non-Phnom Penh, rural Phnom Penh, or urban) and number of children alive during the Khmer Rouge period. The results shown in Table 7 represent adjusted predicted probabilities and changes in these probabilities that arise if an individual experienced a particular event. They are determined as follows: 1) We ran two logistic regressions for each outcome measure. The first equation distinguishes those that experienced no, one, and more than one child death; the second distinguishes those that experienced a spouse death versus not. 2) The results of the logistic regressions are used to determine a set of mean predicted probabilities. First, overall predicted sample probabilities are derived from equations that omit the event but include the control variables. Second, probabilities are derived for those experiencing the death of a child, the death of multiple children, and the death of a spouse. 3) The difference between the overall sample probability and the probability for those experiencing events is defined as the effect. For instance, the overall predicted sample probability for living with others is .970. The probability for those who experienced multiple child deaths is .941. Therefore, multiple child deaths reduce the probability by .029, and this is the effect of this event on the probability of living with others. Table 7 presents the overall predicted sample probabilities and the effects or change in the probabilities for those experiencing events. Significance levels are presented in order to show which of the events resulted in significant changes in predicted probabilities.

There are several interesting findings. First, deaths to multiple children and a spouse significantly reduce the probability of living with others and therefore increase the probability of living alone. The death of multiple children is particularly consequential since it nearly doubles the probability of living alone. Second, outside of living with others, the death of one child and the death of a spouse does not significantly influence the current welfare of older adults as measured by living arrangements, support, and material well-being, and the changes in the probabilities for those experiencing these events is minimal and therefore inconsequential. Third, and in contrast to the last point, the death of multiple children is significant in most instances, decreasing the probability of living with a child, receiving household support, receiving money or goods from children, and reporting favorable self-assessed material well-being. The effect of the loss of multiple children on predicted probabilities is often many times greater, and often in the opposite direction, than the effect of the death of one child and a spouse. Fourth, despite the significant effects of death of multiple children, it is still the case that most older adults, regardless of their experiences, remain likely to coreside with others and children and to receive some exchanges from children. But, the chances of receiving substantial amounts of exchanges in the way of money and goods is quite low. Moreover, as noted above, the living standard of most Cambodian elders is quite poor, even among those in what we have defined as the 'favorable' category.^{3,4} In sum, death of multiple children has some significant impact on current welfare, but net effects, as measured by predicted probabilities, are generally moderate.

CONCLUSION

Today's older adults living in Cambodia are survivors of a violent and disruptive history that includes periods of civil war and occupation by neighboring Vietnam. The Pol Pot led Khmer Rouge period, from 1975 to 1979, was particularly consequential and resulted in much excess mortality, forced migration and separation of families. Not only did violent deaths occur in great numbers during the period but mortality due to disease and famine was also common. Older adults living in Cambodia today have

survived these exceptionally traumatic circumstances, and now live in a more peaceful climate, but their living conditions are still difficult.

During the Khmer Rouge period and the decade following, the country was isolated from most of the rest of the world. The Khmer Rouge eliminated academic institutions and research of any kind was out of the question until the 1990s (Chandler 2000; Huguet, 1991). Universities are now being reestablished, and government and non-governmental agencies have collected some social and demographic data, including a 1998 census, two Demographic and Health Surveys, and several socio-economic surveys conducted by the National Institute of Statistics (National Institute of Statistics, Directorate General for Health and ORC Macro 2000; Huguet et al. 2000; National Institute of Statistics 1997). Data for the current study relies on a very recent survey that is the first of its kind – one that is based on a representative sample of older persons living across Cambodia covering a comprehensive set of issues related to the well-being of older adults. These data allow for the linking of two areas of demographic study that have each been gaining attention in recent years - the consequences of conflict and violence and aging in developing countries. While the latter has shown the considerable extent to which older adults rely on family for their physical, material and psychological well-being, excess mortality due to conflict and violence has the potential of depleting their sources of support. In the current study, we examined the extent to which older survivors of a traumatic history experienced various demographic events and we associated deaths experienced to family members to indicators of well-being, such as the receipt of material support.

Representative population surveys inquiring about experiences during the Khmer Rouge period have not been previously conducted. The current study therefore provides important empirical confirmation of previous demographic estimations and of generalizations made based on the personal reports that have been written by survivors. Our results clearly demonstrate that the demographic influences of the Khmer Rouge period on today's older adults are widespread. The death of children, spouses, forced migration and separation of families was common, and were more likely to be experienced during 1975-79 than before or after. It is particularly telling that 29% of the current sample report the death of at least one child due to violent causes during these years and 97% of those living in urban areas at the start of the period report being forced to migrate. In short, the survey clearly documents that older adults in Cambodia have indeed experienced traumatic personal events, particularly ones associated with the Khmer Rouge.

Although our analysis provides evidence of some longer-term impacts of past events, we conclude that the net long-term effects with respect to living arrangements, support, and material well-being, are modest and at times ambiguous. To be sure, surviving women are likely to have experienced a spousal death during the period and those who did were much less likely to remarry than were men in the same circumstances. Older adults are much more likely to have experienced the death of a son than a daughter. These two findings help explain previous reports of a substantial number of widowed women living with widowed daughters in Cambodia (Zimmer and Kim 2001).

When controlling for number of children alive during the Khmer Rouge period, experiencing the death of a child relates to somewhat smaller family sizes today. But, those with large families during the Khmer Rouge period were more likely than those with small families to experience the death of a child. Consequently, only 2% of those experiencing the death of one child, and 4% of those experiencing the death of two or more, were childless at the time of the survey. Interestingly, 7% of those not experiencing a child death were childless at the time of the survey. So, despite substantial loss of children under the Khmer Rouge regime and its aftermath, the majority of older Cambodians have some potential filial support available.

The impact of the deaths of children and spouses on current living arrangements, support, and material well-being is also somewhat complicated. Death of multiple children, although not the death of a single child, and generally not the death of a spouse, decreases the probability of living with others, living with children, receiving support, and having favorable material well-being. However, given that the probability of living with children and others and of receiving some support remains very high regardless of experiences, the net effect on the population of older adults can be interpreted as being moderate. Put

another way, even the death of multiple children during the Khmer Rouge period generally does not leave older adults at high risk of living alone or living without some degree of support. For example, among those losing multiple children, 94% are still living with others, 76% are living with a child, 87% live in households that receive support from a child, and 92% receive at least some money and goods from a child. The lack of stronger effects needs to be interpreted within the context of pervasive poverty, high fertility, and normative family behavior. There is a normative belief in Cambodia, as in other societies in the region, that the family is responsible for the well-being of older members. Therefore, surviving children, even if small in number, remain obligated to support their aging parents. This normative belief, coupled with high past fertility experienced by the current generation of Cambodian elders, means that even with the death of two children, most still have several others currently alive, and those with only two living children are almost as likely to receive some support from children as adults with greater numbers (Knodel, Chayovan and Siriboon 1992; Zimmer and Kwong 2003).

At the same time, deaths during the period are unrelated to receiving a *substantial* amount of money or material goods from children. But, the total percent receiving this large amount, in contrast to any amount, is quite low, reflecting the overall pervasiveness of poverty in the country. This suggests that where death of children impacts on support, the impact is on those receiving very modest amounts. It is important to note that the war and social disruption in Cambodia in the 1970s took place within a country already characterized by severe poverty. There is substantial evidence that civil wars in developing countries are likely to lead to further impoverishment and inequalities (Pedersen 2002). It is likely that in Cambodia, a poor population became poorer due to the war, and large amounts of support from children are simply not available regardless of how many survived. Families that can afford it may provide substantial amount of support to older adults regardless of the events that occurred in the past. In the end, those who were already living in poverty may be the group most influenced by the war. Thus, small giving is associated with experiences during the war, while large giving is not.

It is also important to note that the influence of the conflict and violence in Cambodia was so widespread that it left few unaffected. Almost everyone in the country experienced the death of family members, even if not children or spouses. The country itself became even more impoverished, as did most of its population. The wide scope of the civil war and its aftermath may mean that it is now difficult to sort out individuals that were and were not affected.

One significant limitation of the current study, and with any survey of a post-war population, is that selection effects are necessarily at work, and some of these might provide alternative explanations to some of the findings. First, accounts of mortality during the Khmer Rouge period suggest that in many cases entire families were killed, and in many other instances, couples died leaving some children surviving (Kiernan 1996). While the impact on these families may be tremendous, surviving elders are not available for our survey. Moreover, our results only relate to survivors and thus do not reflect the total societal impact. Second, and related, older adults that did survive the period, but were most severely impacted, may have died some time between the end of conflict and 2004. Third, those who did survive may not only be a more robust group but also a group that had overall more resources available prior to the war. A number of accounts of the war in Cambodia suggest that those with relative wealth were able to purchase food and other items necessary for survival, while others without these means may not have survived (Kiernan 1996; Ung 2000).

To conclude, the demographic impact of the civil war in Cambodia on the surviving cohort of older adults is substantial. Some significant longer-term influences on well-being, including influences on family support, especially among those that experienced the death of multiple children, are detectable but modest. To understand this, it is critical to consider the overall context of high fertility and especially of pervasive poverty that generally characterizes the elderly population in Cambodia today. In a more general sense, these conditions are both likely attributable, at least to a substantial degree, to the impact of the Khmer Rouge regime and its aftermath. However, given the overall poverty, the widespread effect of the war on the total population, selection factors that determine who survived, and the fact that older populations in poor societies can be supported by a small number of surviving family members, impacts of different individual experiences are perhaps not as noticeable as we may have originally anticipated.

Endnotes:

1 According to the 1999 Socioeconomic Survey conducted by the Ministry of Planning, the average monthly household income in Cambodia was just over 400,000 Riels or about \$100 USD.

2 In addition to testing effects on material well-being indicators measured dichotomously, OLS regressions were conducted where the indicators were considered to be measured on a continuous scale. The conclusions are similar to those that are reported in this paper, except that death of multiple children is more statistically significant in predicting self-assessed material well-being ($p < .05$) and is significant in predicting household wealth ($p < .05$).

3 We ran several additional equations to test for the robustness of our results. We ran equations without controlling for number of children alive during the Khmer Rouge period. These results were not as strong, particularly with respect to the outcome of a child giving any money or goods. However, the effects of the death of multiple children, where significant, did remain so. The conclusion we derive is that the number of children alive during the period somewhat suppresses the effect of deaths on the various outcomes. We ran separate equations for the influence of spousal death by sex, and found results for women to be nearly identical as those reported here, and results for men to be unstable because very few men experienced a spousal death under the Khmer Rouge.

4 Several significant relationships of control variables are evident: Increasing age decreases the probability of living with others. Being female decreases the probability of living with others, living with children and receiving income or goods from children and increases the probability of favorable household wealth. Number of children alive during the Khmer Rouge period increases the probability of living with others, living with children, having a child support the household, receiving money and goods from a child and receiving substantial money and goods from a child. Living in a rural area decreases the probability of living with others, living with children, receiving substantial money and goods from children, having favorable self-assessed well-being and having favorable household wealth, versus living in urban Phnom Penh. Finally, living in rural sections Phnom Penh province reduces the probability of receiving substantial money and goods from children and having favorable household wealth, versus living in urban sections of Phnom Penh.

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Table 1: Selected sample characteristics showing weighted and unweighted percent distributions
(N=1,273)

Characteristic	Weighted distribution	Unweighted distribution
Sex		
Male	40.2	36.4
Female	59.8	63.6
Residence		
Urban	9.4	20.6
Rural	90.6	79.4
Age		
60-64	32.8	35.9
65-69	26.5	25.5
70-74	20.8	19.2
75 +	19.8	19.3
Marital Status		
Men		
Currently married	81.6	78.0
Widowed	15.8	19.2
Other	2.5	2.8
Women		
Currently married	30.7	17.8
Widowed	64.3	76.3
Other	4.9	5.9
Literacy		
Men		
Can read well	39.3	44.7
Can read with difficulty	33.0	30.5
Cannot read	27.7	24.8
Women		
Can read well	4.9	6.3
Can read with difficulty	14.7	16.7
Cannot read	80.4	77.0

Table 2: Percent of older adults experiencing the death of a child by sex of child, age of child at time of death, cause, and period of death (N=1,243)

Cause	Period	All ages			Age 11 +		
		Both sexes	Sons	Daughters	Both sexes	Sons	Daughters
All causes (a)	All periods	75.5	59.0	46.8	48.6	36.2	24.3
	Before Khmer Rouge	29.2	19.9	17.2	5.6	3.9	2.5
	During Khmer Rouge	42.8	32.8	22.2	27.2	21.2	11.8
	After Khmer Rouge	30.1	19.2	14.4	24.3	15.0	11.4
Violence (b)	All periods	31.8	25.5	13.5	26.6	21.5	10.2
	Before Khmer Rouge	2.2	2.1	0.4	1.9	1.9	0.3
	During Khmer Rouge	28.6	22.7	12.9	23.2	18.5	9.4
	After Khmer Rouge	2.2	1.6	0.6	2.1	1.6	0.5

(a) Includes violence, disappearance, accidents, illness and other causes

(b) Includes violence and disappearance

Note: Proxy respondents are omitted (N=30).

Table 3: Percent of older adults experiencing the death of a spouse by sex, cause, and period of death

Cause	Period	Both sexes (N=1258)	Men (N=463)	Women (N=795)
All causes (a)	All periods	52.8	30.9	67.8
	Pre KR	10.9	8.0	12.9
	During KR	16.1	5.9	23.1
	Post KR	28.0	19.5	33.8
Violence (b)	All periods	10.8	2.1	16.6
	Pre KR	0.5	0.2	0.8
	During KR	10.0	1.9	15.5
	Post KR	0.2	0.0	0.3

(a) Includes violence, disappearance, accidents, illness and other causes

(b) Includes violence and disappearance

Note: Those never married are omitted (N=15)

Table 4: Percent of older adults moving, moving due to force, and experiencing forced migration with separation of family, during selected periods of Cambodian history, by place of residence at the start of the period

	Period	All residents	Lived in an urban area	Lived in a rural area
Moving	Lon Nol, 1970-1975	23.3	27.6	22.6
	Khmer Rouge, 1975-1979	66.2	97.7	62.5
	Vietnamese, 1979-1989	59.4	61.9	59.4
	Current, 1989-2004	7.7	10.1	7.3
Moving due to force (a)	Lon Nol, 1970-1975	15.5	17.9	15.2
	Khmer Rouge, 1975-1979	63.0	97.0	59.0
	Vietnamese, 1979-1989	2.2	4.8	2.2
	Current, 1989-2004	0.2	0.5	0.2
Forced migration and separation of family	Lon Nol, 1970-1975	4.0	6.6	3.5
	Khmer Rouge, 1975-1979	19.2	38.1	16.8
	Vietnamese, 1979-1989	0.7	0.0	0.7
	Current, 1989-2004	0.2	0.0	0.2

(a) Includes forced moves and fleeing violence; in case of multiple moves, refers to at least one being for those reasons.

Notes: Experiences of moving are not substantially different between men and women.

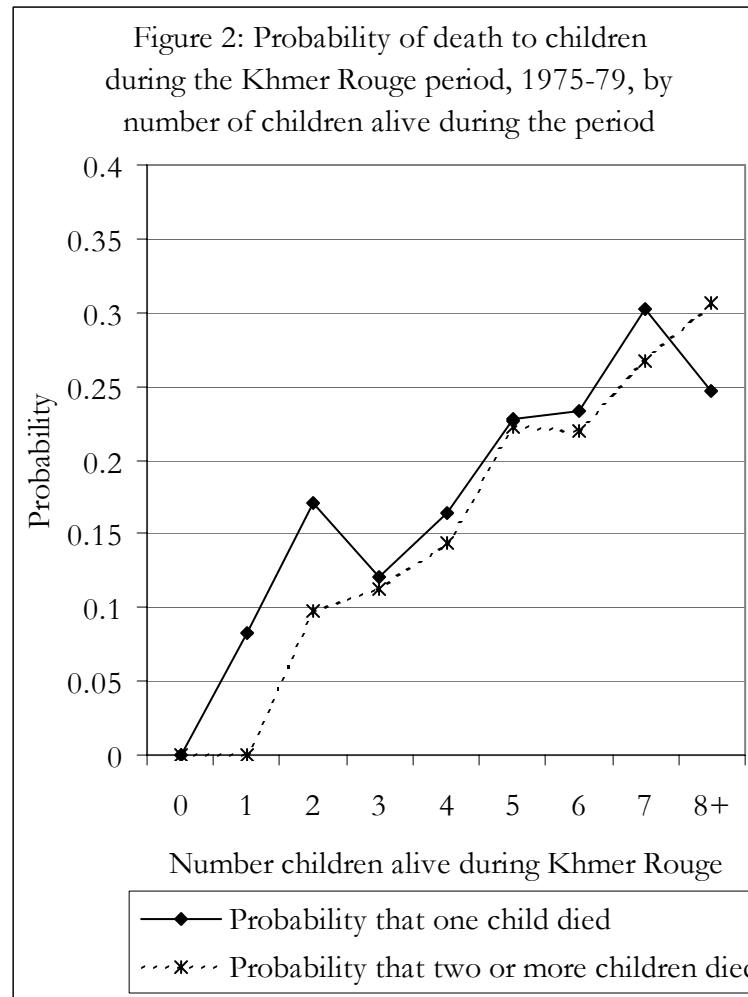
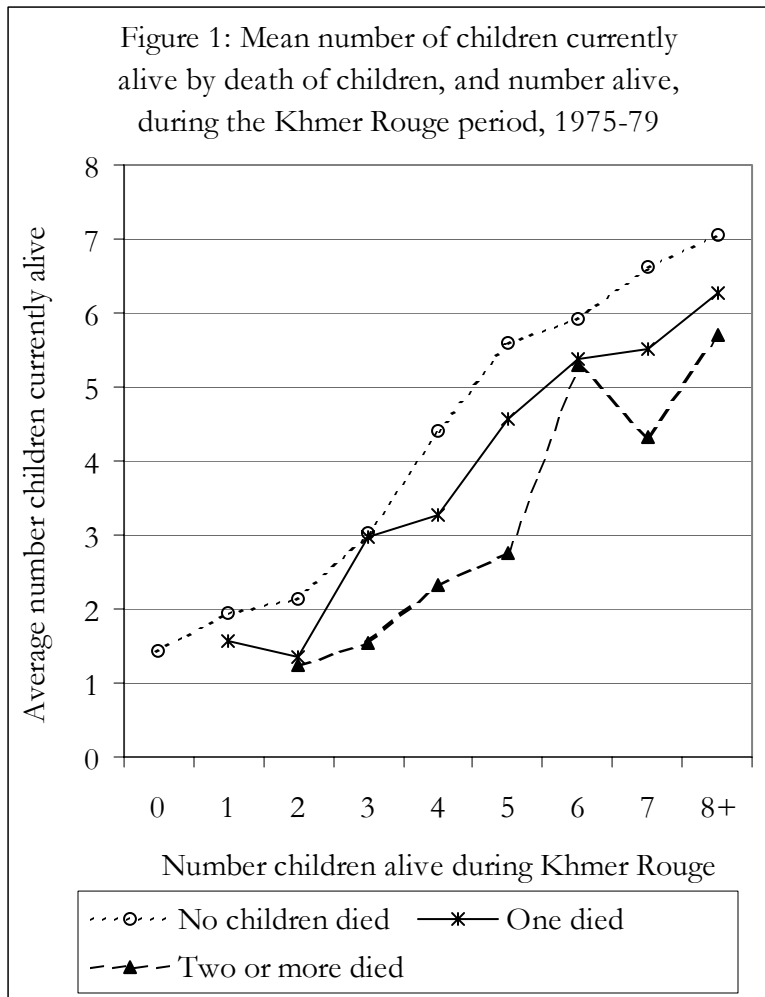
Differences between urban and rural are only significant during the Khmer Rouge period.

The table includes 1255 individuals with those living in other countries during any period being omitted (N=18). Urban/rural N's at the start of each period are: Lon Nol 305/ 950; Khmer Rouge 261/ 994; Vietnamese 38/1217; current 431/ 824.

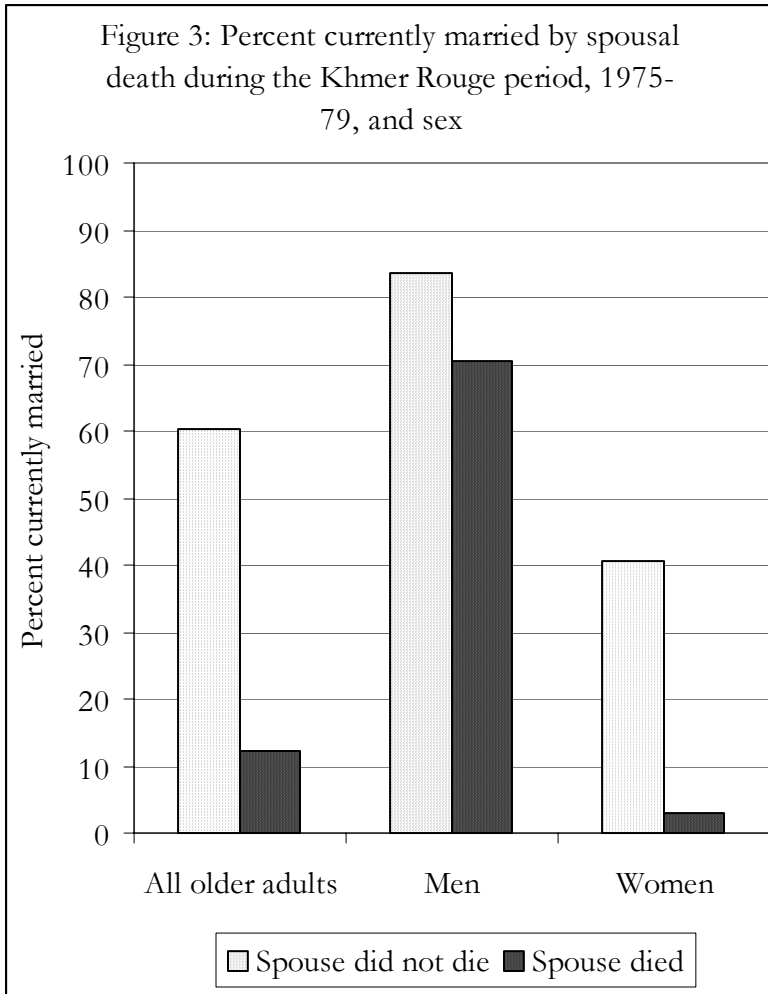
Table 5: Percent reporting selected events experienced during the Khmer Rouge period, 1975 to 1979, by sex and place of residence at the start of the period

	Both sexes (N=1219)	Men (N=449)	Women (N=770)	Lived in an urban area at the start of the Khmer Rouge (N=256)	Lived in a rural area at the start of the Khmer Rouge (N=963)
Death of at least one child	43.4	37.3	47.6	48.9	44.3 [#]
Death of at least one child age 11+	27.5	19.6	33.0	31.8	28.5 [#]
Death of at least one child due to violence	29.0	22.6	33.5	36.3	29.9
Death of two or more children	22.3	17.2	25.9	27.4	23.2 [#]
Death of a spouse	16.0	5.6	23.2	33.2	18.7
Death of a spouse due to violence	10.2	1.8	16.0	23.5	13.0
Death of a spouse + death of at least one child	8.5	1.8	13.0	19.4	10.4
Forced migration	63.8	57.8	67.9	96.9	62.5
Forced migration + death of a child	29.0	21.2	34.3	48.0	28.9
Forced migration + death of a spouse	12.2	4.4	17.5	32.9	13.3
Forced migration + death of at least one child + death of a spouse	6.8	1.2	10.6	19.4	7.7
Did not experience death of child or spouse, or forced migration	19.6	25.5	15.6	2.0	19.3

Notes: Proxy respondents, those never married and those living in other countries at the start of the Khmer Rouge period are omitted (N=54). Urban residents include 224 living in Phnom Penh and 32 living in other urban centers. Differences in the distributions between men and women are statistically significant ($p < .05$) in all cases. Differences in the distributions between urban and rural are statistically significant ($p < .05$) in all cases except where indicated by #.



Notes: Proxy respondents and those never married are omitted (N=45). Number of children alive during the Khmer Rouge period determining by children ever born before 1979 and alive at any time between 1975 and 1978. Number of cases by number children alive during Khmer Rouge are: 0=32; 1=75; 2=110; 3=132; 4=148; 5=172; 6=153; 7=146; 8+=260. Number of cases by death to children are: no deaths=681; one death=253; two or more deaths=294. F-value significance tests for differences in mean number of children across deaths indicate all comparisons are significant except for those with 1 and 2 children alive during the Khmer Rouge.



Notes: Proxy respondents and those never married are omitted (N=45). Probability of being currently married is statistically significant for those with and without a spouse death for all older adults and for women at $p < .01$, but for men at $p < .10$.

Table 6: Indicators of living arrangement, support, and material well-being, by death to children and spouse during the Khmer Rouge period, 1975 to 1979 (N=1,219)

	Total sample	Death of one child	Experienced the following...	
			Death of two or more children	Death of a spouse
Percent...				
living with others	96.7	96.2	93.8***	93.4**
coresiding with a child	79.9	79.3	76.2*	80.0
whose household receives support from a child	87.7	89.5*	87.2	87.7
receiving money or goods from a child	92.8	93.8	91.6*	89.8*
receiving substantial money or goods from a child	25.3	27.3	26.3	30.8*
with favorable self-assessed material well-being	25.5	23.5	23.7	29.1
with favorable household wealth	25.0	26.0	26.0	35.2***

*** p < .01 ** p < .05 * p < .10

Notes: Proxy respondents, people never married and those living in other countries at the start of the Khmer Rouge period are omitted (N=54). In addition, associations with death of a child, a son, and two are more children include only those at risk of experiencing the event (e.g. they had at least one child living during the Khmer Rouge period). Significance tests based on chi-square values and compare event occurring versus not occurring among those at risk.

Table 7: Effect of selected events occurring during the Khmer Rouge period, 1975-79, on predicted mean probabilities of indicators of living arrangements, intergenerational exchanges, and economic well-being (N=1,219)

	Overall predicted sample probability	Change in the predicted probability for those experiencing...		
		Death of one child	Death of two or more children	Death of spouse
Probability of living with others	.970	+.016	-.029**	-.016*
coresiding with a child	.816	+.021	-.051**	-.009
whose household receives support from a child	.867	+.026	-.063**	+.015
receiving money or goods from a child	.910	+.007	-.121***	-.002
receiving substantial money or goods from a child	.292	+.023	-.033	+.028
with favorable self-assessed material well-being	.289	-.024	-.039*	+.005
with favorable household wealth	.379	+.019	-.028	-.010

*** $p < .01$ ** $p < .05$ * $p < .10$

Notes: Overall predicted sample probability controls for age, sex, rural/urban residence, and number of children alive during the Khmer Rouge. Proxy respondents, people never married and those living in other countries at the start of the Khmer Rouge period are omitted (N=54).



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