Beyond Maternal Mortality

A qualitative study of death in rural Bangladeshi women of reproductive age

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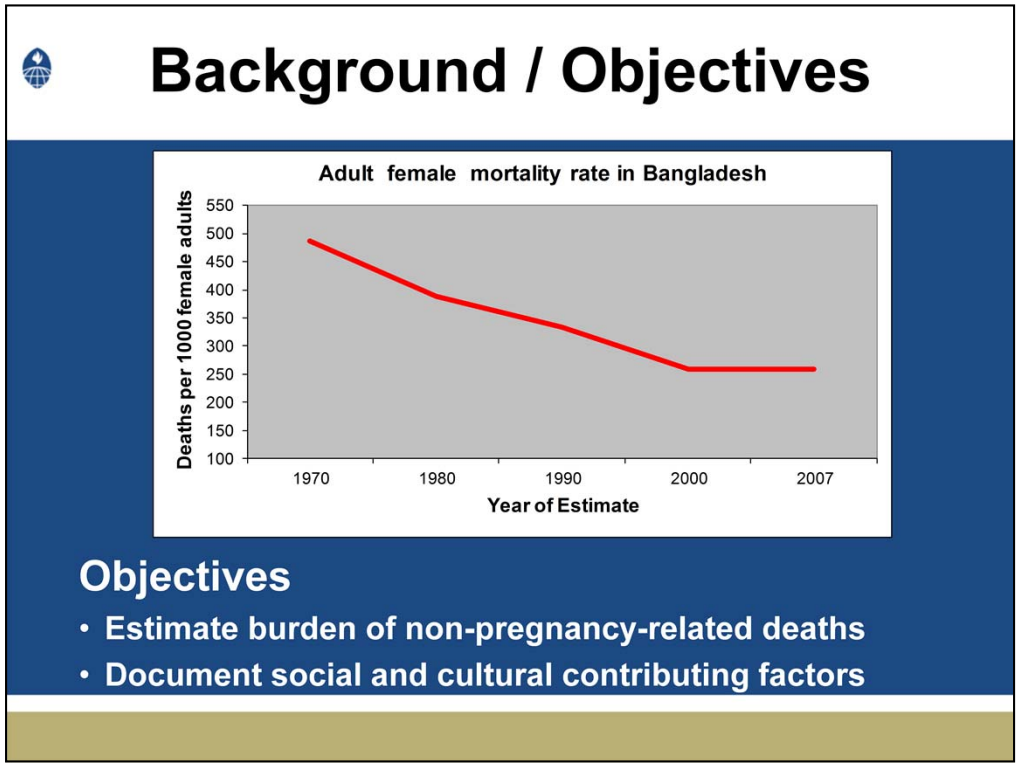
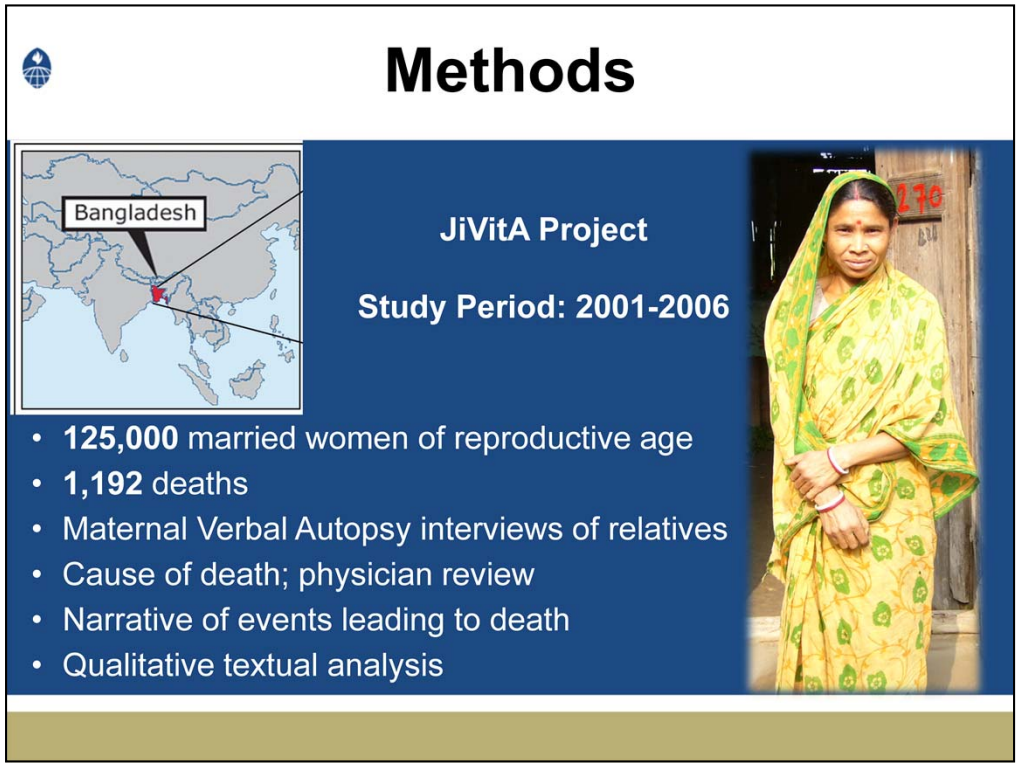


This graph illustrates the motivation for this work. The line shows the adult female mortality rate in Bangladesh over the past three and a half decades. The adult female mortality rate is basically the probability of a 15-year-old girl dying before reaching age 60, if subject to current age-specific mortality rates. As we can see, there was a dramatic decline in adult female mortality between 1970 and 2000, due in part to the stabilization of the country following civil war, end of famine, and declines in TFR. Yet since 2000, there is some evidence of stagnation in this decline and little change between 2000 and 2007.

(For reference: Adult female mortality, as defined by the WHO, is the probability of dying between the ages of 15 and 60--that is, the probability of a 15-year-old dying before reaching age 60, if subject to current age-specific mortality rates between those ages.)

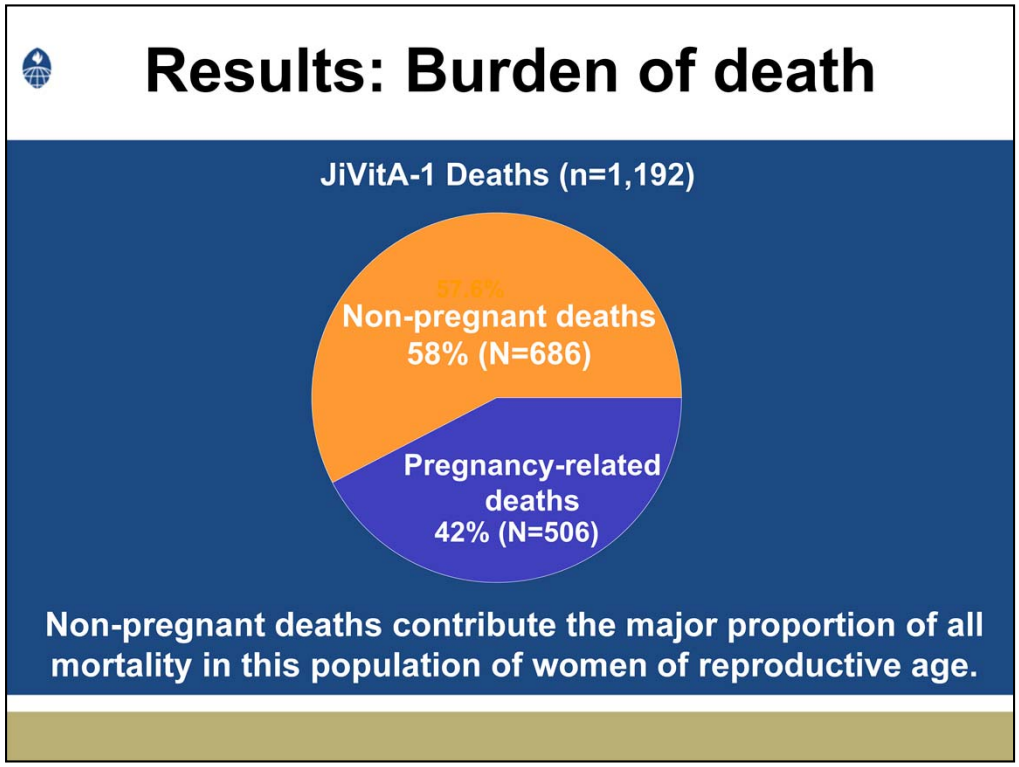
If we look at research on female deaths, we see that the majority of studies focus on deaths that occur during pregnancy. Yet few studies look at deaths outside of pregnancy. There are many reasons for this: pregnancy is a point of contact with the health system, and it allows us to address the continuum of maternal and child health. However, it leaves us to wonder whether we are missing problems that lie outside of pregnancy.

Research questions: what is the burden of non-pregnancy-related death among women of reproductive age in this setting? And what are the social and cultural factors contributing to these deaths?



To answer this question, I worked with a Johns Hopkins population-based trial called JiVitA in the northwest part of Bangladesh, in two districts: Gaibandha and Rangpur. This trial assessed the impact of maternal nutritional supplementation on pregnancy outcomes. This project provides us with a unique opportunity to understand causes of death among women of reproductive age. Between 2001 and 2006, 125,000 women were followed throughout pregnancy for vital status. As medical personnel and vital registration systems are sorely lacking in these areas, we use an instrument to discern COD called the verbal autopsy. Trained physician interviewers conducted verbal autopsy interviews with family members of the deceased woman. Respondents provided information on the biomedical symptoms the woman experienced as well as an open-ended narrative of the events leading up to the woman's death. These verbal autopsies were reviewed by physicians to assign the proximal COD. We performed qualitative textual analysis of narratives to elicit social and cultural contributing factors.

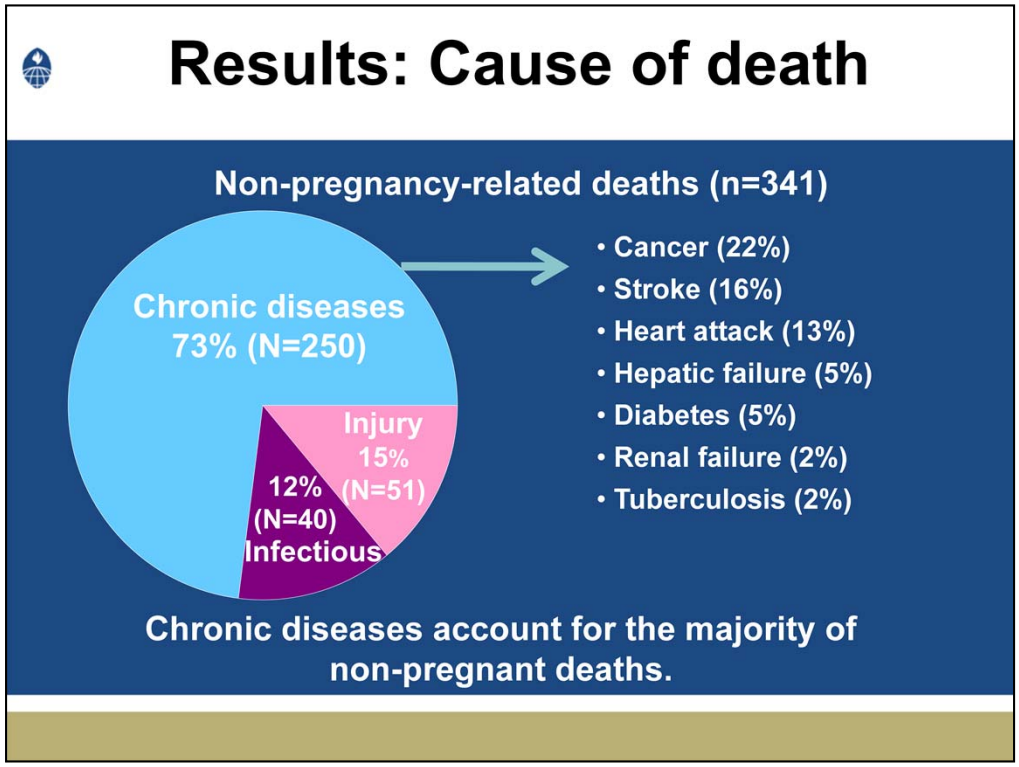
This study area in northwest Bangladesh is a rural, largely agrarian society. The socioeconomic characteristics of this society are representative of typical rural communities in South Asia.



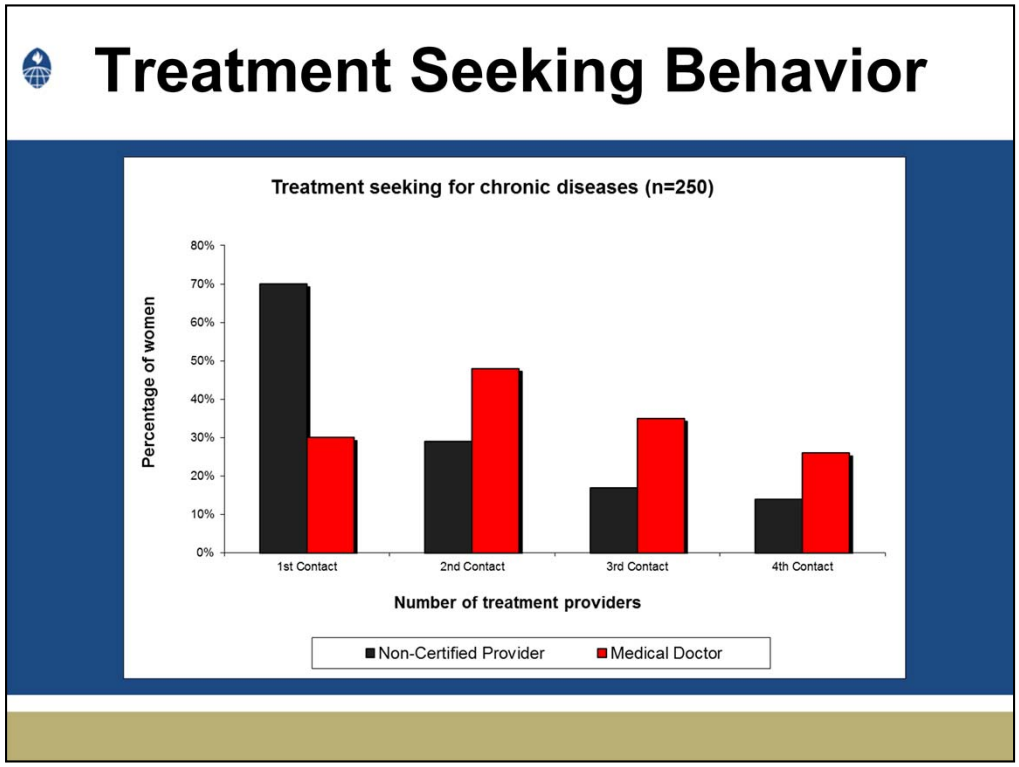
Here we see a pie chart of JiVitA deaths. Of the 1,192 deaths recorded between 2001 and 2006, 58% (n=686) were not related to pregnancy, while 42% were pregnancy-related.

Non-pregnancy-related deaths are defined as those due to causes unrelated to pregnancy or its management. Pregnancy-related deaths, as defined by ICD-10, are those resulting from the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death.

We can see that deaths unrelated to pregnancy actually represent the majority of deaths in this JiVitA-1 study population.



Here we see the distribution of deaths among a sample of 341 non-pregnant women. Of these, 73% (n=250) occurred due to chronic causes, 12% (n=40) due to infectious causes, and 15% (n=51) due to injuries. Within injuries, 75% (n=38) were intentional and 25% (n=13) were unintentional. We can see the important role that chronic diseases play in non-pregnant mortality in this population. Cancer (22%) was the leading cause of chronic disease deaths, followed by stroke (16%), heart attack (13%) hepatic failure (5%), and diabetes (5%).



Given the important role of chronic diseases, we looked at this category more closely. This graph represents points of contact with health care providers among women who died from chronic diseases. The yellow bars represent non-certified traditional care providers, or health care providers without formal training or medical certification. In this setting, there are a multitude of non-certified treatment providers, ranging from village doctors to herbal and homeopathic treatment providers to shamans. The red bars represent medical doctors.

The majority (70%) of women suffering from chronic diseases first sought care from a non-certified health provider. For 2nd, 3rd, and 4th contacts, however, we see that women prefer care from certified providers. What's interesting here is that more than half of the women (52.0%, n=130) went to at least three different treatment providers over the course of illness.

Non-certified providers are the first providers for women who died of chronic diseases, and women mostly switch to certified providers following the first stage of care. This may suggest that women and their families tend to seek medical treatment after traditional treatment fails to cure the illness.

Underlying Factors

Infectious diseases

- Poverty as a barrier to receiving medical treatment

Sudden deaths

- Possession by an evil spirit before death

Intentional injuries

- Younger women (Mean=23.8 years)

Photo: Alain Labrique

Photo: Shegufta Sikder

Now we'll discuss some results from other categories of death. Within infectious diseases, 38% (n=15) of respondents listed poverty as a barrier to receiving medical treatment, which was significantly higher than the other categories (overall average of 17% (n=59)).

Within sudden deaths, or deaths that occurred with little to no notice, 25% (n=13) of respondents reported that the woman had been possessed before death, compared to 10% (n=4) of respondents within infectious disease. We suggest that the families attribute death to evil spirits when the cause of death is uncertain or nonspecific. Overall, 25% of respondents (n=13) reported that the woman had been possessed before death, indicating a relatively common belief in evil spirits. The picture shows a cow jaw hanging on the doorway. This action is believed to deter evil spirits from the home.

Women dying from intentional injuries were significantly younger (24 years, 8 years) compared to all women (age at death: 33 years, 9 years). In our analysis, 63.2% (n=24) of these deaths were directly preceded by marital or family disputes, which confirms findings from other studies on suicides and homicides performed in Matlab, Bangladesh. This picture is a large billboard in the study area that discourages domestic violence. As Amy mentioned in the last presentation, violence against women is an important problem in this population.

Conclusions

- **Non-pregnancy related mortality high**
- **Majority cause: "chronic disease"**
  - Multiple treatment providers
  - Traditional care is first sought
- **Infectious causes:**
  - Cost of treatment remains a barrier
- **Belief in supernatural may delay medical care-seeking**

Non-pregnant mortality plays an important role among women of reproductive age. The majority of deaths result from chronic disease. This may signify an epidemiological transition in this setting.

Chronic disease: Women and their families seek care from multiple treatment providers, with an initial preference for traditional treatment.

Despite available effective treatment for infectious diseases, the costs of treatment still prevent patients from receiving care.

Overall perception of non-medical disease origins may cause a delay in seeking medical care.

Limitations: Other societal factors may delay care seeking. We were limited to factors mentioned by respondents, though I conducted a subsequent study in this area specifically looked at delays to care seeking.

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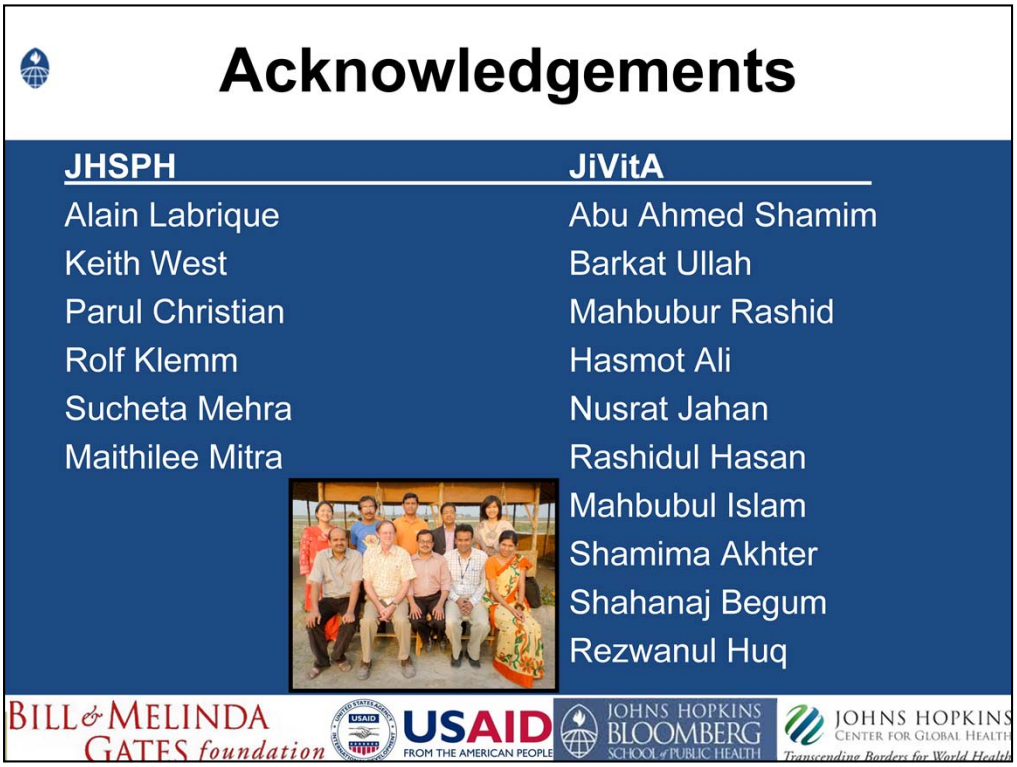

Non-pregnancy related mortality needs attention. We should not tolerate deaths in otherwise healthy women of reproductive age. There is a need for interventions that target vulnerable women not just during pregnancy but outside of pregnancy as well.